MUTOH

User's Guide

Kona cutting plotter

COLOURGEN

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Service and Support
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kona

This contents of this manual is based on firmware version KN 5.0.0. Always check for the latest revision of this manual on Mutoh's member site. Create a free account on www.mutoh.eu.

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Chapter 1 Regulations and safety information

1.1 Warnings, cautions and notes

Safety terms in this manual and the contents of warning labels attached to the cutter are categorized into the following three types, depending on the degree of risk (or the scale of accident).

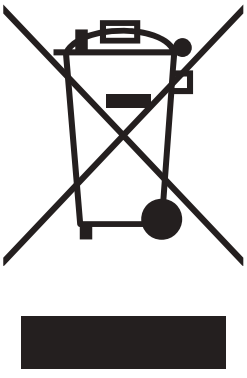
Read the following explanations carefully and follow the instructions in this manual.

Safety terms	Details
⚠ **Important** ⚠	Must be followed carefully to avoid death or serious bodily injury.
⚠ **Caution** ⚠	Must be observed to avoid bodily injury (moderate or light) or damage to your equipment.
⚠ **Notes** ⚠	Contains important information and useful tips on the operation of your cutter.

1.2 Compliance with the following regulations

The CE marking is a mandatory European marking for certain product groups to indicate conformity with the essential health and safety requirements set out in European Directives.

By affixing the CE marking, the manufacturer, his authorized representative, or the person placing the product on the market or putting it into service ensures that the item meets all the essential requirements of all applicable EU directives and that the applicable conformity assessment procedures have been applied.



Your product is designed and manufactured with high-quality materials and components, which can be recycled and reused.

When this crossed-out wheeled bin submenu is attached to a product, it means the product is covered by the European Directive 2002/96/EC - WEEE regulation.

Please inform yourself about the local separate collection system for electrical and electronic products.

Please act according to local rules and do not dispose of your old products with your normal household waste. The correct disposal of your old product will help prevent potential negative consequences for the environment and human health.

This product is tested and approved by the Canadian Standards Association (CSA), this to provide increased assurance of quality and safety.
The product is tested according to IEC60950.
This standard tries to cover all safety aspects.

- Mechanical, electrical
- Choice of components
- Choice of materials: flammability!
- Connectors, cables
- Fire enclosure

This means the product is safe for users, service personnel and production personnel.
CSA International certification is not a legal commitment but it assures the quality and safety of the machine.

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

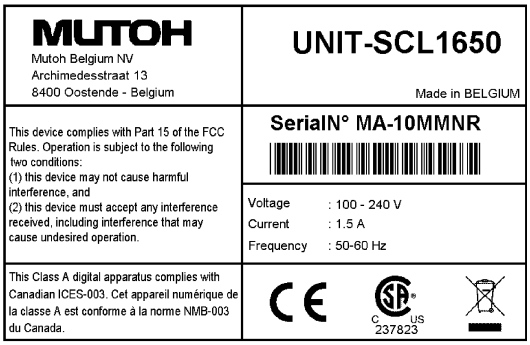
ICES

This Class A digital apparatus complies with Canadian ICES-003.

1.3 Important notes

- Technical problems and maintenance, which require the cutter to be opened, can only be done by qualified personnel who were trained to repair this type of machine.
- Unauthorized removing of covers and/or overruling safety locks can be dangerous and will result in your guarantee becoming void.
- After powering OFF the machine, wait at least 10 seconds before powering ON again. Not respecting this time interval could damage the machine.
- The cutter must be connected to an earthed mains socket-outlet.

1.4 Safety labels

Label	Description
	Be careful not to pinch your fingers between the pressure rollers and grit rollers when loading media for example.
	Be careful not to get stuck between the following moving parts: ■ Cutting head ■ Grit rollers
 	Be sure not to stare in the laser mounted on the cutting head.
	Serial number label providing you the following information: ■ Serial number ■ Unit name ■ Power supply requirements ■ Regularisations ■ Class A product ■ Address Mutoh Belgium nv

Chapter 2 Product overview

2.1 Dimensions machine

	Kona 760	Kona 1400	Kona 1650
Width	1200 mm / 47,2"	1850 mm / 72,8"	2090 mm / 82.3"
Depth	260 mm / 10,2"	490 mm / 19,3"	490 mm / 19,3"
Height	275 mm / 10,8"	1150 mm / 45,3"	1150 mm / 45,3"
Weight (options excl.)	21 kg / 46,3 lb	48 kg / 105,8 lb	52 kg / 114,6 lb
Weight (options incl.) ■ Media support rolls ■ Media basket ■ Roll off system	40 kg / 88,9 lb	56 kg / 123,5 lb	63 kg / 138,9 lb

2.2 Installation environment requirements

2.2.1 Power supply

- **Voltage** 100-240 V AC
- **Current** 1.5 A
- **Frequency** 50-60 Hz

2.2.2 Ambient conditions

Operation environment

- **Temperature**:10°C - 35°C
- **Humidity**:35% - 75% non-condensing

Recommended environment (dark area)

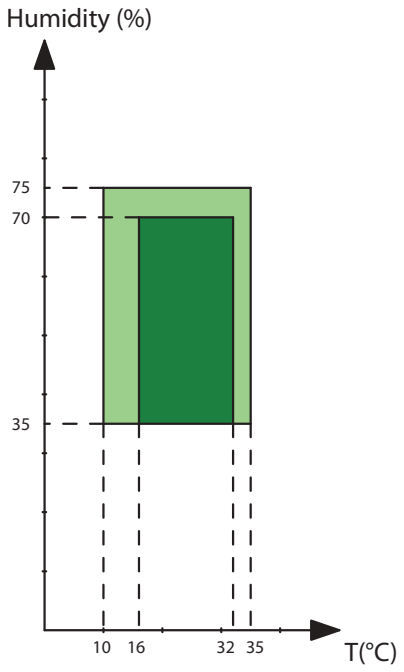
- **Temperature**:16°C - 32°C
- **Humidity**:35% - 70% non-condensing

Variation rate

- **Temperature**:2°C per hour
- **Humidity**:5% per hour

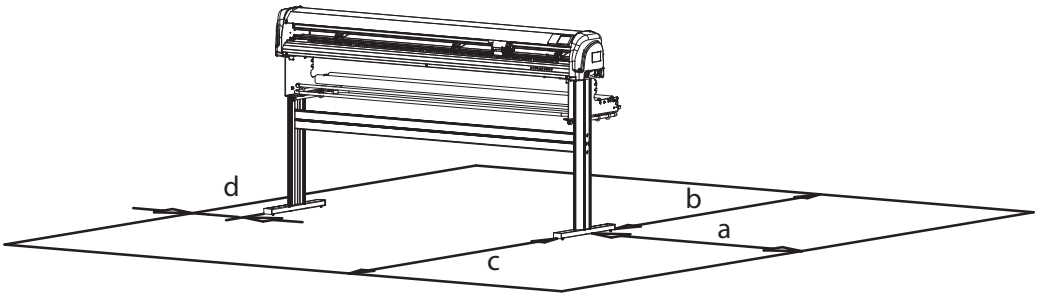
Storage environment

- **Temperature**: 0°C - 50°C



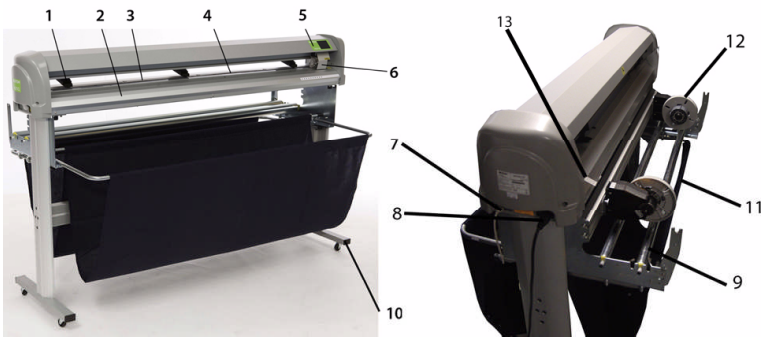
2.2.3 Room conditions

- Please protect your cutter from moisture, dust, draught and direct sunlight (to prevent possible media detection and epos readout issues). It is best to keep your machine away from open windows and air-conditioners.
- See to it that there is an adequate space around the cutter so that ventilation is not obstructed.
- Avoid unnecessary vibrations and set up your cutter on a level surface.
- Be sure to have some free space on each side of the Kona to ease the operating of it.



- **a** = at least 1 meter
- **b** = at least 1 meter
- **c** = at least 1 meter
- **d** = at least 0,2 meter

2.3 Part names and functions



N°	Description	Extended description
1	Pressure rollers	To push the media against the grit rollers
2	Media guide	A guiding platform with vacuum fans to transport the media as flat as possible during cutting
3	Cutting mat	Provides a reliable cutting surface and minimizes damage to the knife tip
4	Grit rollers	Rollers with a granular surface to move the media front and backwards
5	Control panel touch screen	To make various settings before and during cutting
6	Cutting head	Assembly of cutting knife, sheet-off knife and EPOS sensor
7	USB inlet	To connect the USB cable
8	Power inlet and power switch	To connect the power cable and power on the unit
9	Roll conveyor	To support and roll-off the vinyl (Optional on Kona 760)
10	Stand and wheels	To move the cutter easily (Optional on Kona 760)
11	Media bag	To collect the media when sheeting off (Optional on Kona 760)
12	Roll-off system	To roll-off pre printed vinyl (Optional on Kona 760)
13	Pressure roller lever	To lower and raise the pressure rollers

Chapter 3 Basics

3.1 (Un)Install USB drivers

Before you are able to work with Mutoh's Kona cutting plotter compatible software, a connection between your workstation and the Kona cutting plotter should be made.

In case your computer already has an earlier USB driver installed, please uninstall it and reinstall the driver.

Refer to Uninstall/update USB drivers on page 29

3.1.1 Install USB drivers

Step 1: Download the latest drivers from Mutoh's member Site > window drivers.

Step 2: Unpack the driver package.

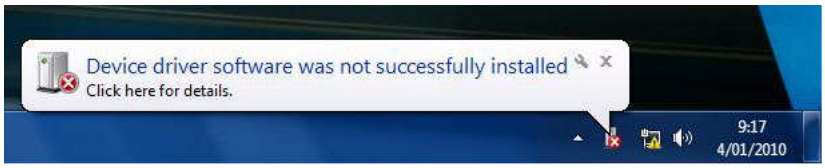
Step 3: Make a connection between the cutter and your computer using a USB cable.

Step 4: Power ON the cutter and computer.

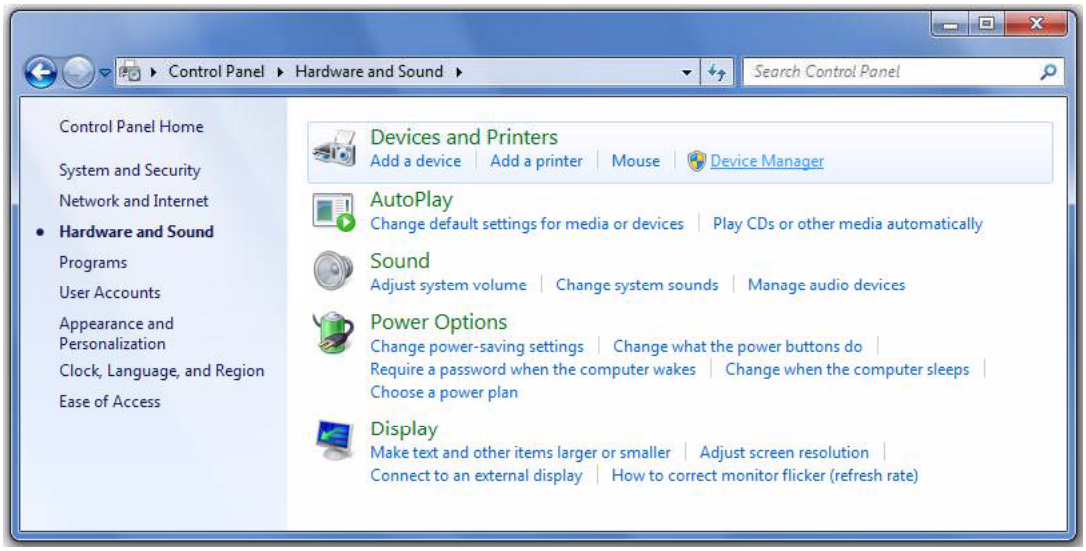
Note

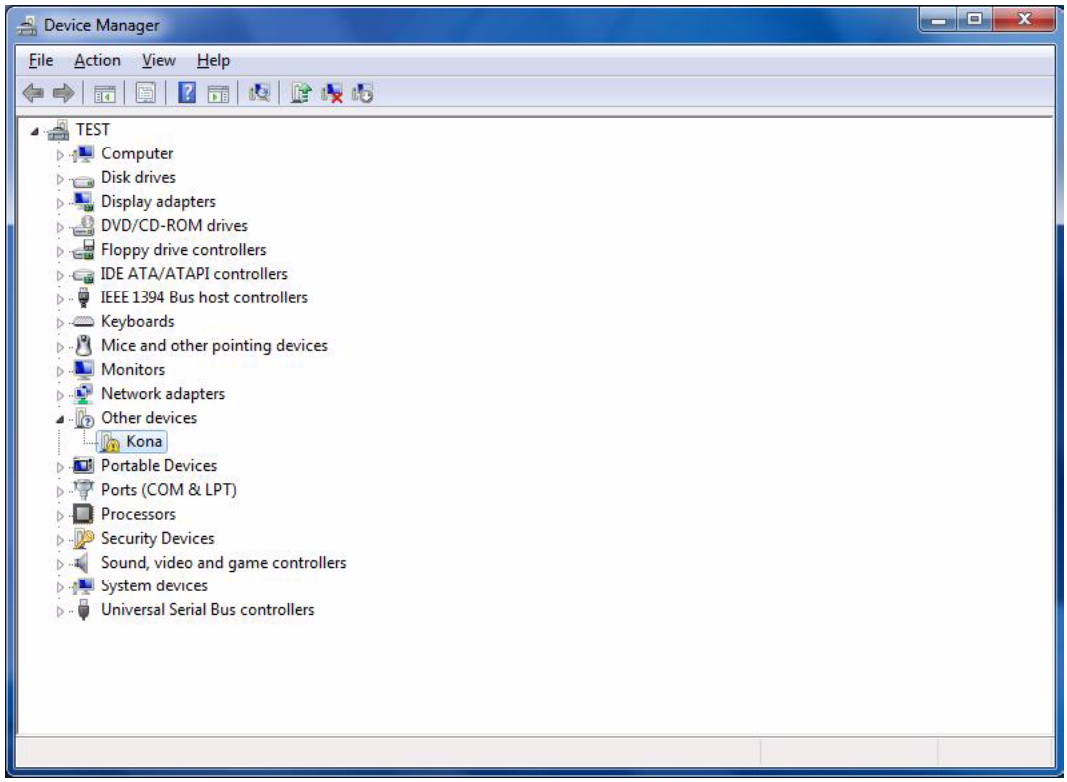
- **When working in a Windows Vista or 7 environment, it might be possible that the drivers are installed automatically. If the installation is not correct or is does not run automatically, continue with his procedure.**

Step 5: Your computer shows an error when auto installing

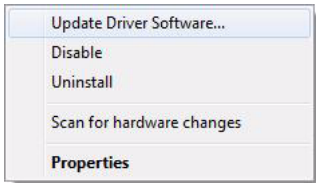


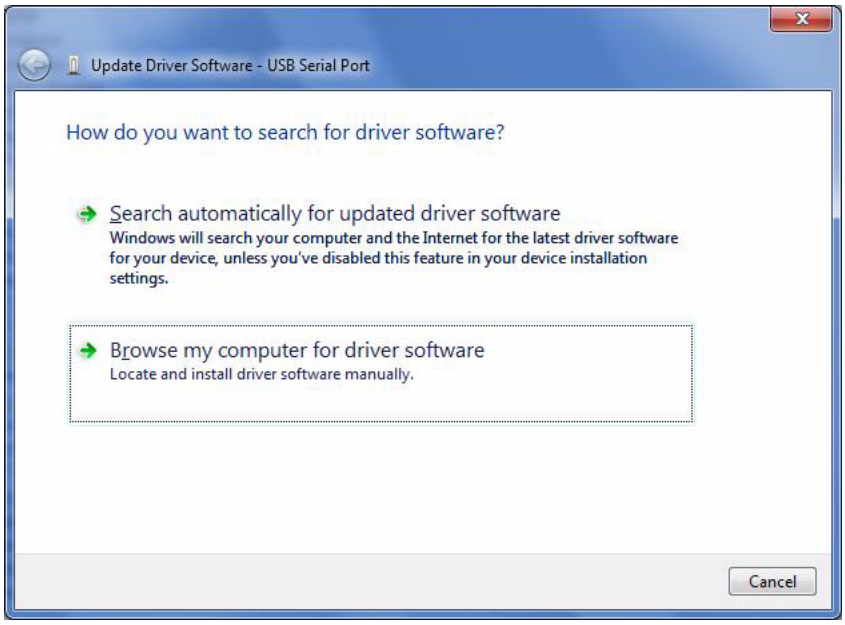
Step 6: In the control panel's device manager select '*Other devices - Kona*'.





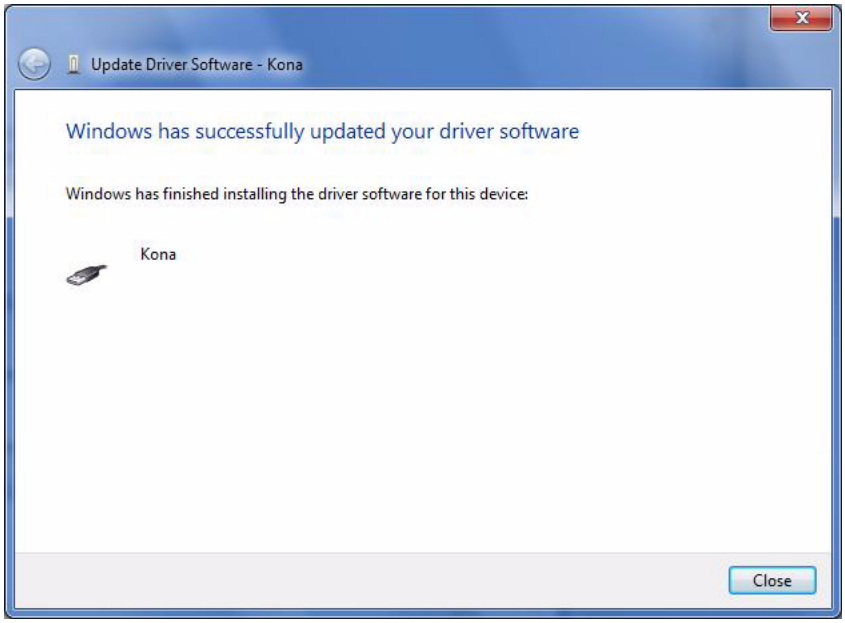
Step 7: Right click and choose *'Update Driver Software ...*'



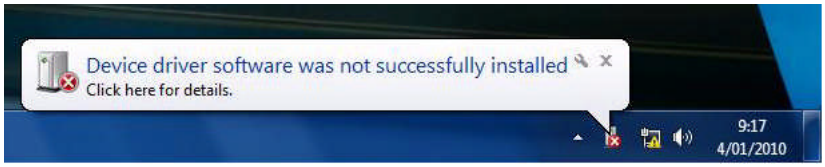


Step 8: When prompted, choose '*Install this driver software anyway*'.

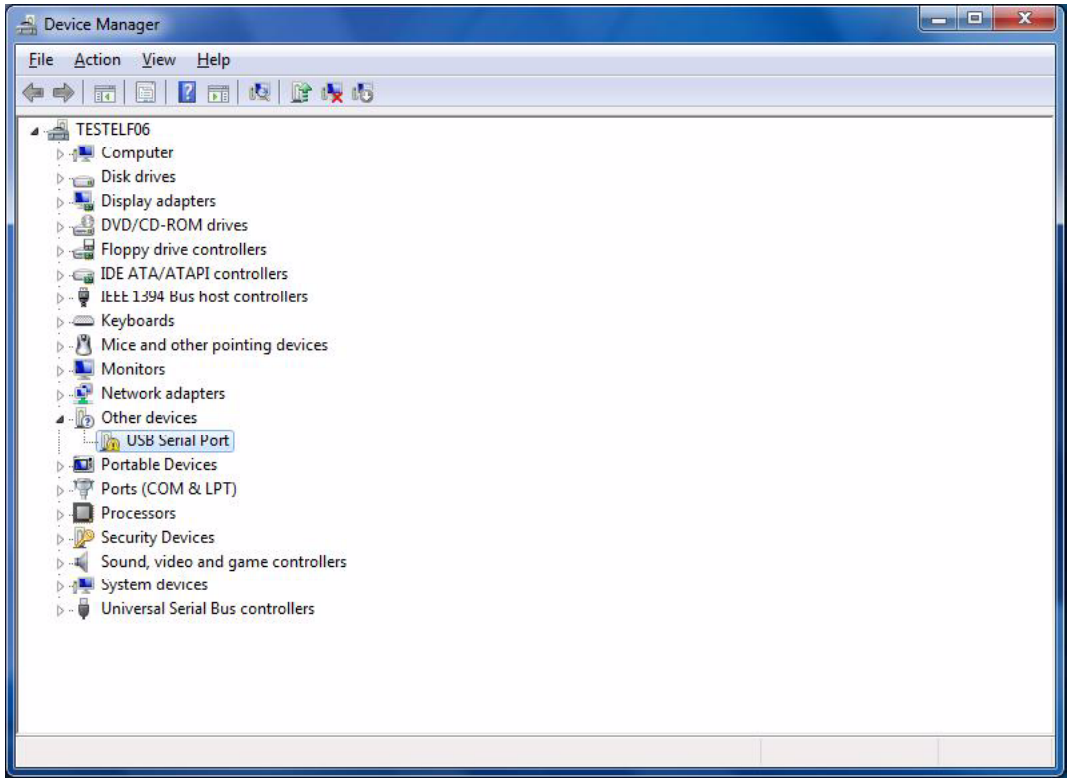
Step 9: The USB driver is now installed.



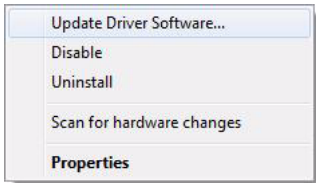
Step 10: A new error is shown briefly about the virtual comport.

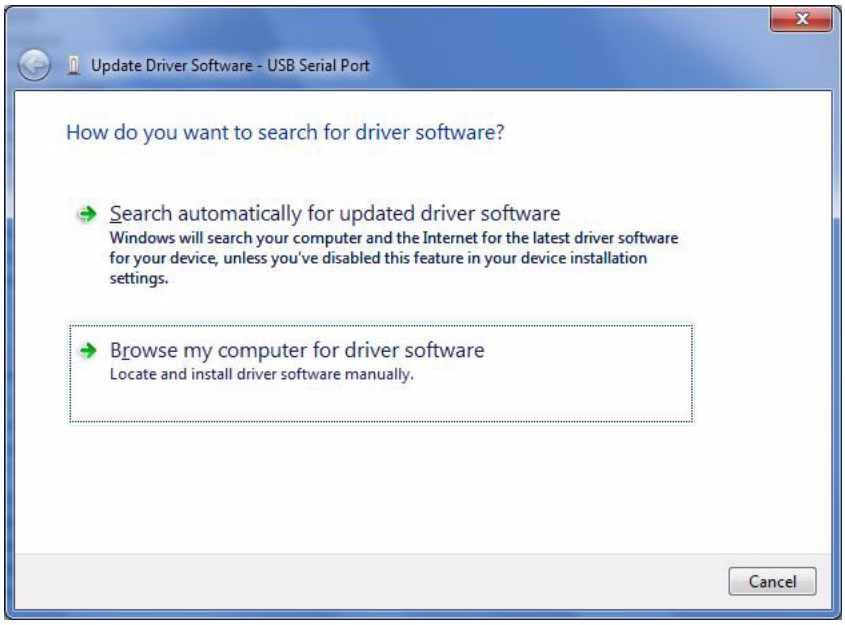


Step 11: In the control panel's device manager select '*Other devices - USB Serial Port*'.



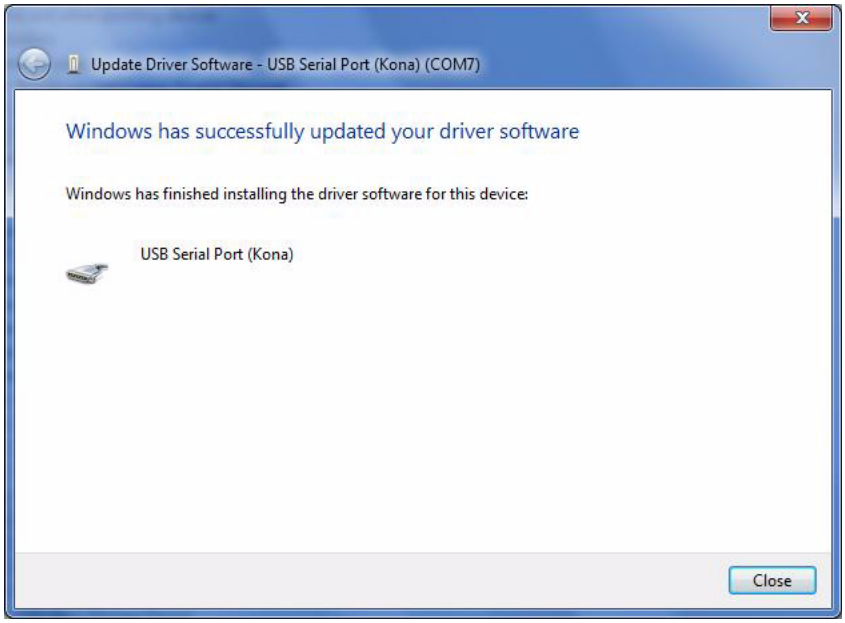
Step 12: Right click and choose '*Update Driver Software...*'





Step 13: When prompted, choose *'Install this driver software anyway*'.

Step 14: USB Serial Port driver is now installed.



3.1.2 Check COM port used

For Windows XP users

Step 1: Open the windows *control panel.*

Step 2: Double click on the *system* icon

Step 3: Click on the *hardware* tab

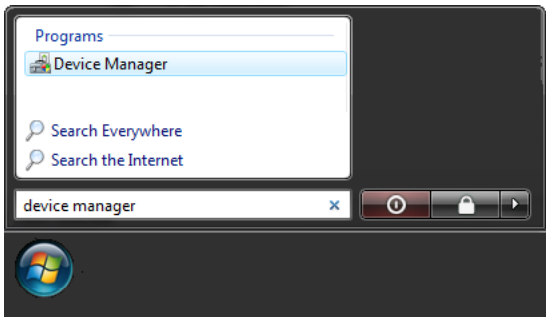
Step 4: Click on *device manager*

Step 5: Unfold the Ports (COM & LPT) menu and check which COM port is written next to the Kona cutting plotter.

For Windows Vista and 7 users

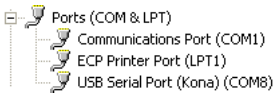
Step 1: Click on the *start* button

Step 2: Type *device manager* in the search window



Step 3: Click on *device manager*

Step 4: Unfold the Ports (COM & LPT) menu and check which COM port is written next to the Kona cutting plotter.



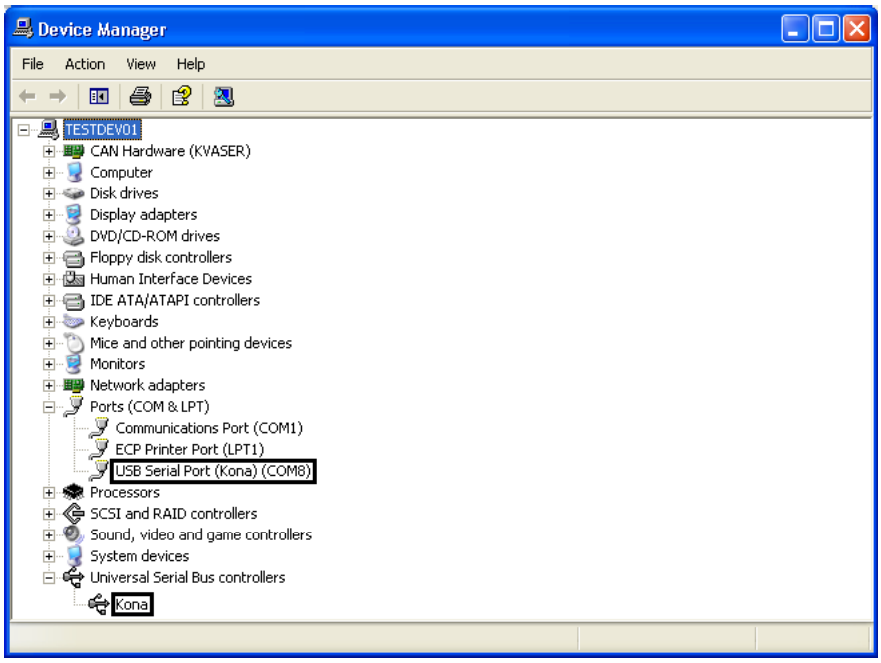
3.1.3 Uninstall/update USB drivers

Please follow the instructions below to know how to uninstall the USB drivers.

Step 1: Make sure your cutter is powered ON and connected to the PC.

Step 2: In the *Device manager* you will find your device

- *Virtual serial port*
- *USB device*



Step 3: Uninstall the serial PORT

- Double-click on the USB serial port item and select the *driver* TAB
- When you want to install a new version of the driver press the *update driver* button.
- When you want to remove the complete driver press on the *uninstall* button.

Step 4: Perform the same actions to *uninstall/update* the USB device

Step 5: When the driver is successfully uninstalled, the virtual serial port and the USB device are removed from the device manager list.

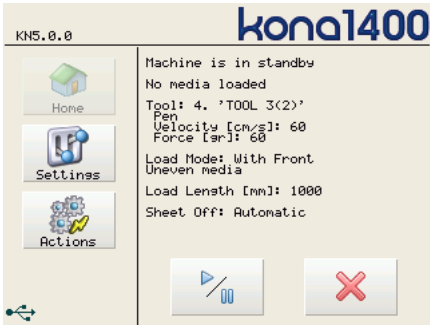
3.2 Power ON / OFF the cutter

3.2.1 Powering ON

Step 1: Make sure there is no media loaded.

Step 2: Switch ON the power button.

Step 3: The home screen will appear.



Note

- **In could happen that the cutter displays a warning message that some calibrations are not performed yet.**
- **Perform these calibrations before cutting to obtain perfect cutting quality.**

3.3 Installing firmware

3.3.1 Normal procedure

Step 1: Make a connection between the Kona cutting plotter and your computer using a USB cable (standard in-the-box item).

Step 2: Be sure that the USB driver is already installed!

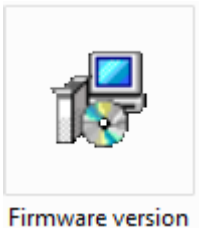
Refer to Uninstall/update USB drivers on page 29

Step 3: Power ON the cutter and computer.

Step 4: Be sure that the pressure rollers are raised.

Step 5: Download the latest firmware from Mutoh's member Site > window drivers or insert the Kona cutting plotter installation CD.

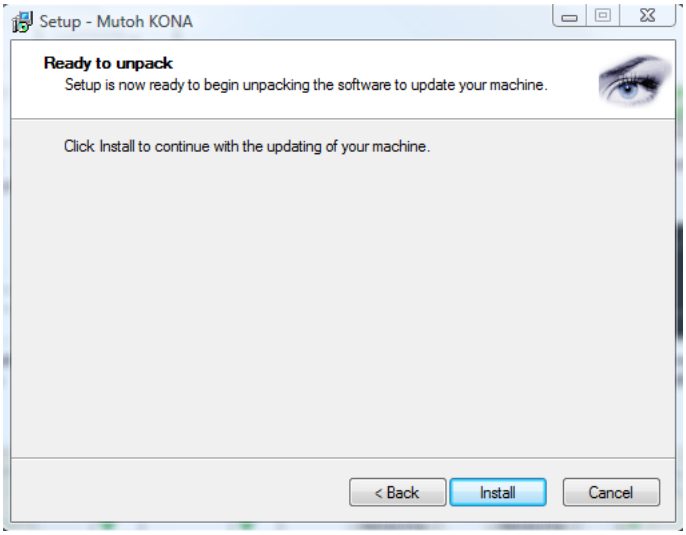
Step 6: Double click on the *exe* file.



Step 7: Press *next*.

Step 8: Read the License Agreement and select *I accept the agreement* and press *next*.

Step 9: Click *Install* to continue.



Step 10: The program will extract the files.

Step 11: Select the *ComPort* on which the cutter is connected and press *Apply*.

Refer to Check COM port used on page 27

Step 12: The PC will send and program the new firmware to the cutter.

Step 13: The Kona cutting plotter will restart automatically as soon as the firmware has been installed.

Step 14: The new firmware has been installed properly when you hear a beep.

Note

- **After updating the new firmware, take a parameter backup. A new firmware automatically leads to new internal parameters.**

  Refer to the application guide for more information.

Note

- **It is not advised to downgrade to lower firmware versions. If downgrading the firmware, a correct functioning cutter is no longer guaranteed with the current settings.**
  - Reset the user machine defaults and restore the backup from the previous version. e.g. restore parameter backup taken on FW 1.0.0.

3.3.2 Recovery procedure

In case the Kona fails to update the firmware, there is a recovery procedure available. If the firmware upgrade has failed, the cutter will:

- not light its display
- not make a sound when powering on
- blink 4 error leds (available when removing the right hand cover)

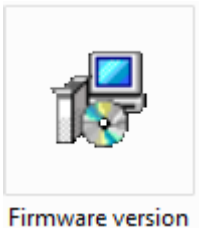
There are 2 possibilities to perform a recovery.

Reinstalling the FW via the PC.

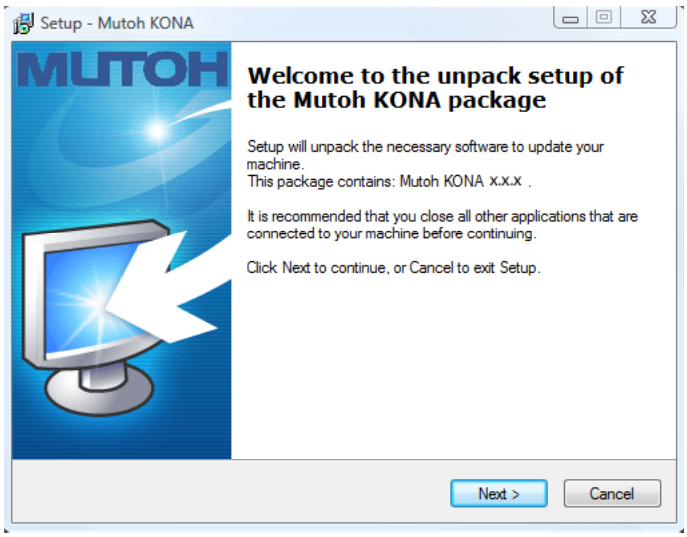
To use the recovery mode, proceed as follows:

Step 1: Download the latest firmware from Mutoh's member Site > window drivers or insert the Kona cutting plotter installation CD.

Step 2: Double click on the *exe* file.

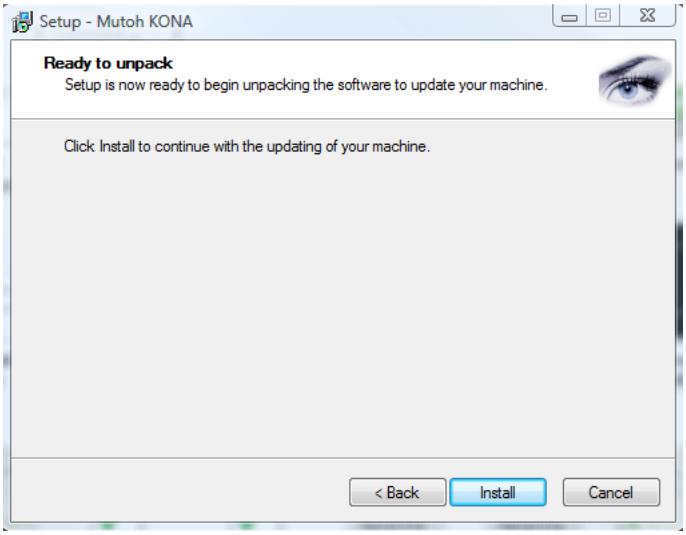


Step 3: Press *next*.



Step 4: Read the License Agreement and select *I accept the agreement* and press *next*.

Step 5: Click *Install* to continue.



Step 6: The program will extract the files.

Step 7: Select the *ComPort* on which the cutter is connected and press *Apply*.

Refer to Check COM port used on page 27

Step 8: The PC will send and program the new firmware to the cutter.

Step 9: The Kona cutting plotter restarts automatically as soon as the firmware is installed.

Step 10: The new firmware is properly installed when you hear a beep.

Note

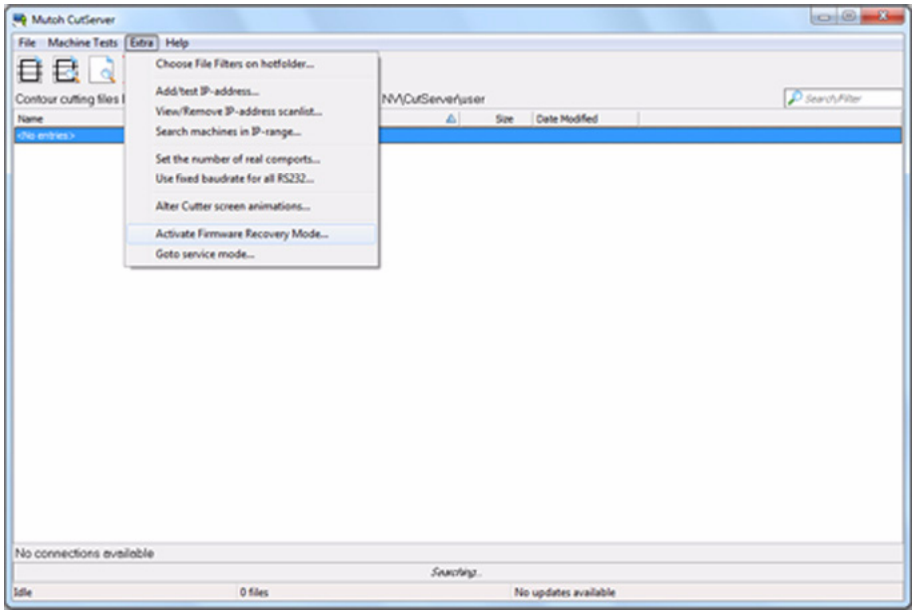
- **After updating the new firmware, take a parameter backup. A new firmware automatically leads to new internal parameters.**

  Refer to the application guide for more information.

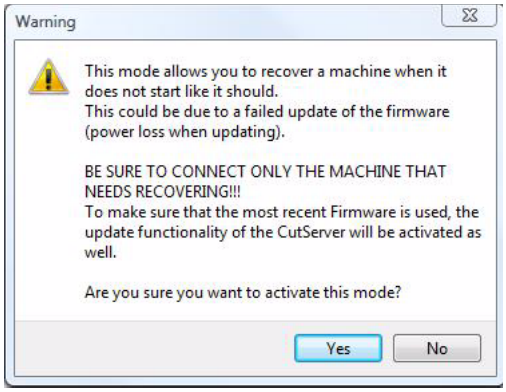
Recovery procedure via the CutServer

Step 1: Start the CutServer.

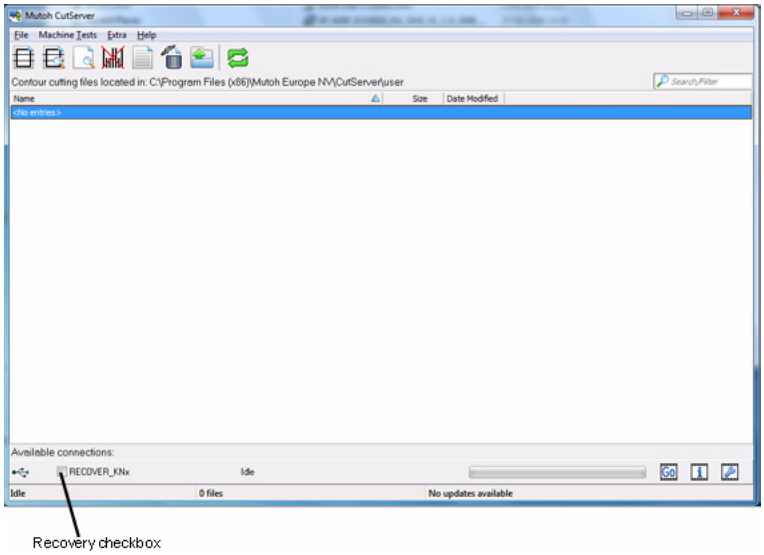
Step 2: In the CutServer, click the *Extra* tab and select *Activate Firmware Recovery Mode*.



Step 3: A new screen appears asking if you are sure. Select *Yes*.

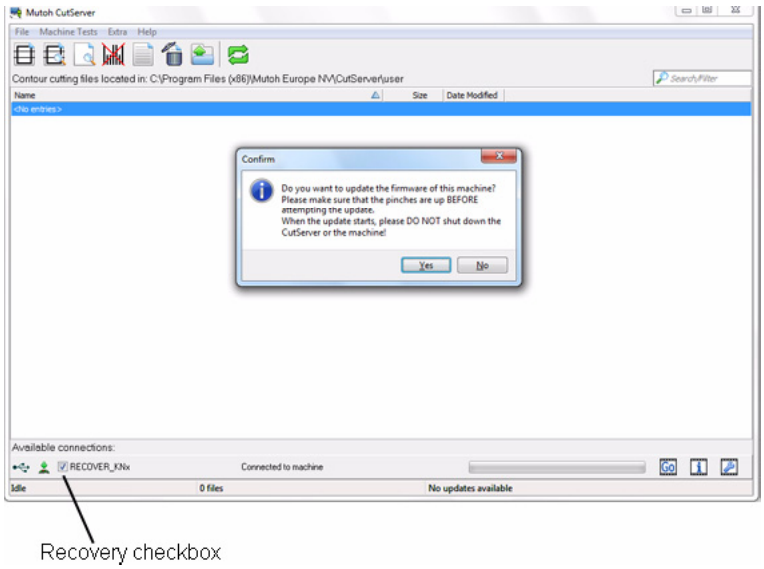


Step 4: In the status bar, a recover connection becomes available.

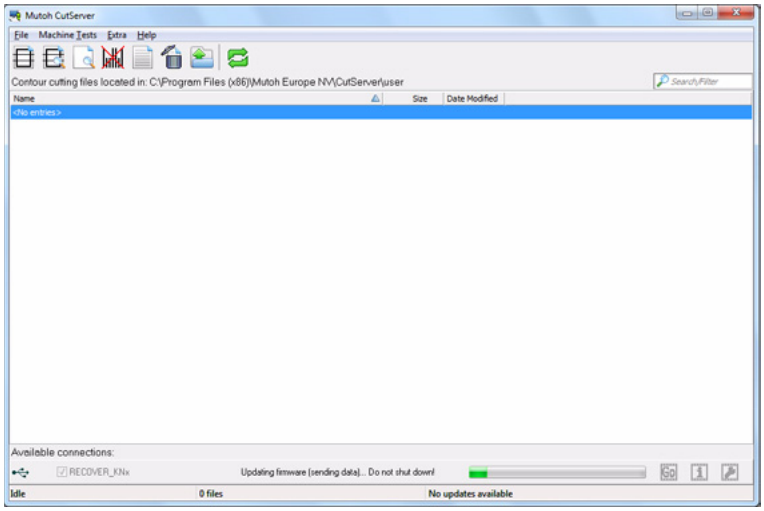


Step 5: Select this recover connection.

Step 6: The recovery button appears next to the checkbox. As soon as selecting this button, a confirmation window appears asking if you are sure you want to proceed. Select *yes*.



Step 7: The firmware is being recovered.



Step 8: After the recovery, restart the CutServer or restart the cutter.

3.4 Installing and replacing tools

3.4.1 Installing tools

At the right-hand side of the cutter head, you find a pivoting mounting bracket. Open this bracket to install a full range of cutting and drawing tools.

To do so, please follow the instructions mentioned below.

Step 1: Power off the Kona.

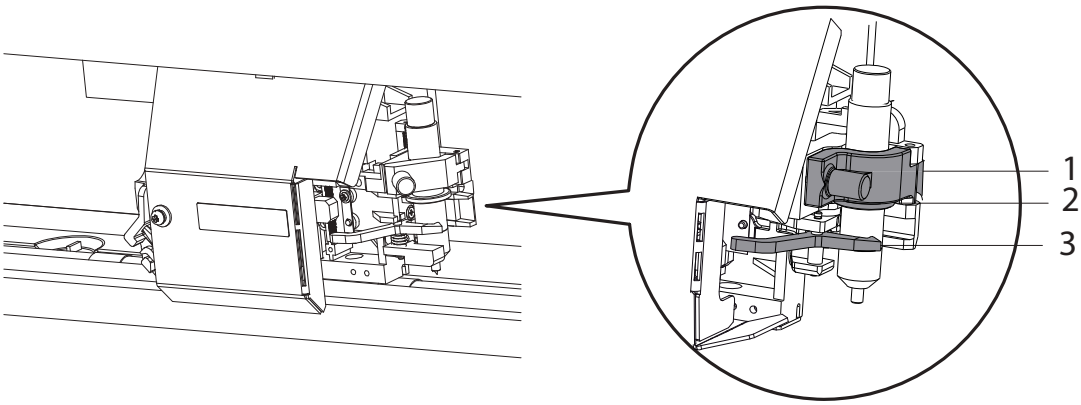
Step 2: Make sure the pressure rollers are up.

Step 3: Manually move the cutter head to the left.

Step 4: Open the screw (1) to unlock the tool head-mounting bracket.

Step 5: Hold back the clip (3) of the tool head and slide the tool into position, make sure the tool collar fits into the groove just beneath the locking screw (2).

Step 6: Fasten the screw (1) to secure the tool into position.



Step 7: Power on the cutter and perform the EPOS alignment check to be sure the distance between EPOS sensor and knife/pen point is set correctly. Otherwise, it might occur that the data is cut with an offset.

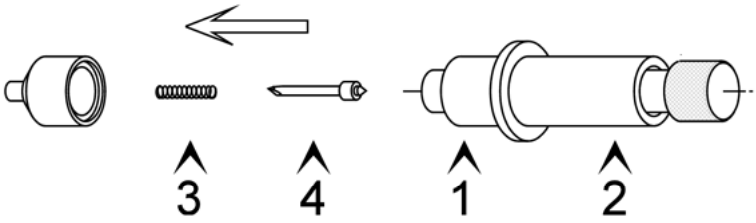
Refer to Epos on page 92

3.4.2 Replace cutter blade

To replace a blade, please follow the procedure below:

Standard knife holder

Step 1: Hold the body (2) into one hand and unscrew the base part (1)



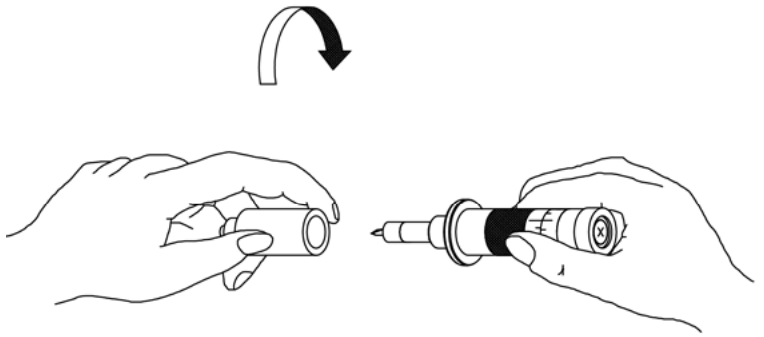
Step 2: Remove the spring (3) and the cutting blade (4).

Step 3: Slide the spring over the new cutting blade

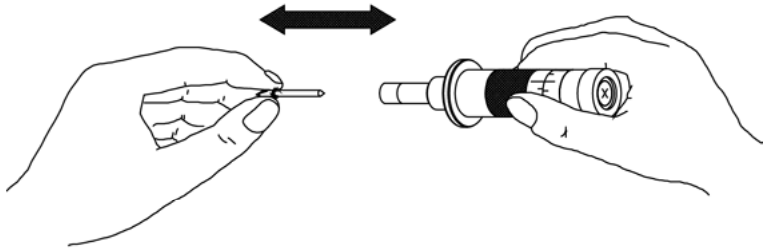
Step 4: Place the new blade with its spring into the base part and screw the whole assembly onto the body.

Knife holder with nonius

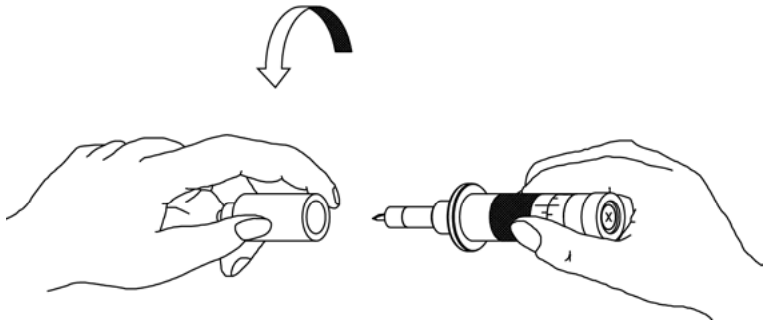
Step 1: Take the body into one hand and remove the base part.



Step 2: Pull out the old blade and insert a new one.



Step 3: Place the base part on top of the holder assembly and twist it tightly.



3.4.3 Replace sheet-off blade

Caution

- **Be careful not to cut your fingers when replacing the sheet-off blade!**

Please follow the procedure below to replace the sheet-off blade:

Step 1: Loosen the screw fixing the sheet-off blade and protection plate with a hexagon key of 2,5 mm.

Step 2: Remove the protection plate and sheet-off blade.



Note

- **Be aware that the knife is held in its position with a magnet.**

Step 3: Replace the sheet-off blade or rotate it (4 cutting sides) and reinstall all the parts.

Step 4: Tighten the screw firmly and verify that the assembly is reinstalled correctly by performing an automatic or manual sheet-off.

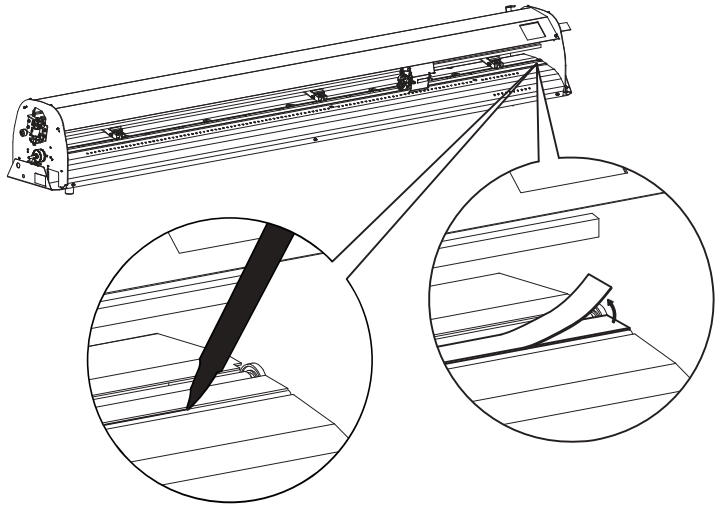
Refer to Sheetoff on page 99

Refer to Sheetoff on page 123

3.4.4 Replace cutting mat

Please follow the procedure below to replace the cutting mat.

Step 1: Draw a line with a small pen in front of the cutting mat and remove the worn cutting mat.



Step 2: Clean the platen with isopropanol.

Step 3: Install the new cutting mat in the same position as the old one.

Step 4: If you notice cutting errors after replacing the cutting mat, it might be necessary to contact an authorized Mutoh technician to perform a Y-Z profile measurement.

3.5 Setting the correct knife depth

Adjusting the knife depth is a very important parameter when it comes to making high quality outputs.

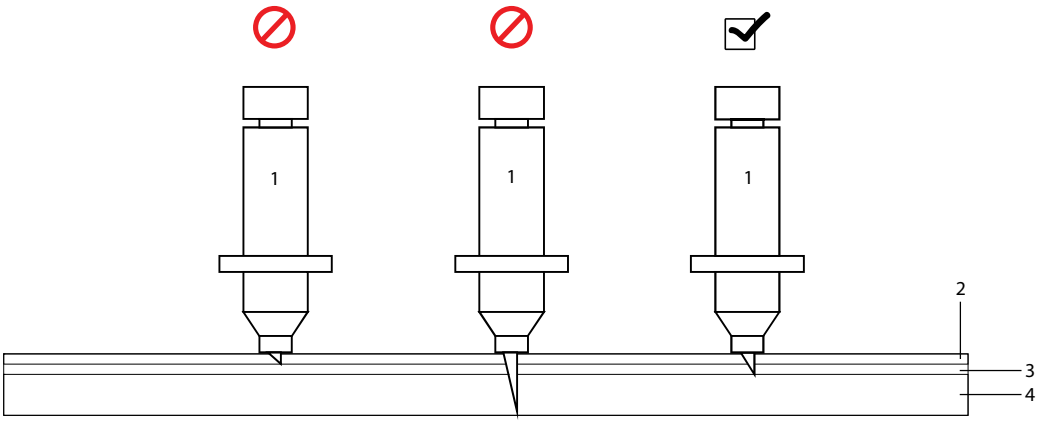
First of all you need to decide whether to cut your job in single or multi tool mode before you are able to set the knife depth correctly. Refer to the table below for the different possibilities and which knife depth to set.

Application	Single tool mode	Multi tool mode
Kiss cutting	Contour cutting knife depth on page 43	Contour cutting knife depth on page 43
Through cutting (e.g. Cut Through - Trim Poster on page 114)	Cut through depth on page 44	Cut through depth on page 44
Kiss cutting & through cutting	Cut through depth on page 44	Contour cutting knife depth on page 43 & Cut through depth on page 44

Refer to Cut through on page 100 **for even more details.**

3.5.1 Contour cutting knife depth

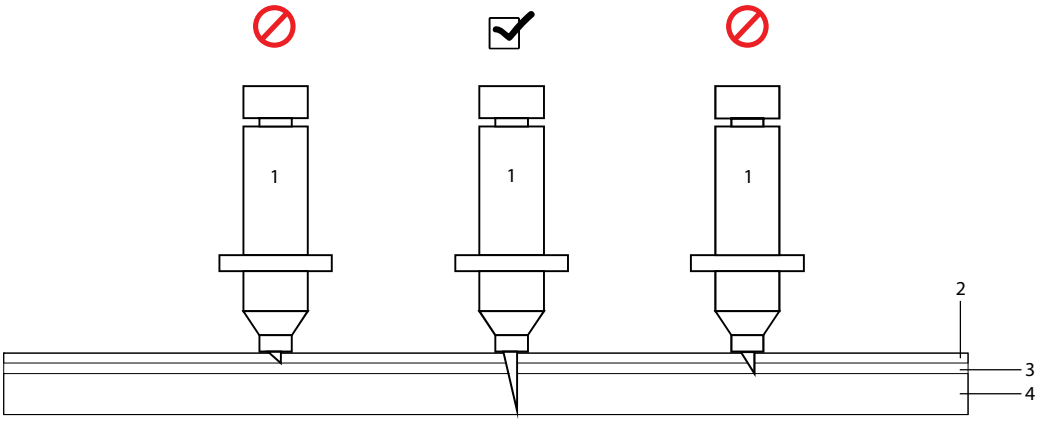
Make sure that the knife blade sticks out enough of the knife holder, but not too much. The knife top should just leave a mark on the backing.



N°	Description
1	Knife holder
2	Vinyl
3	Adhesive film
4	Backing

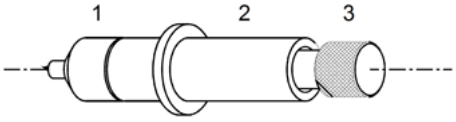
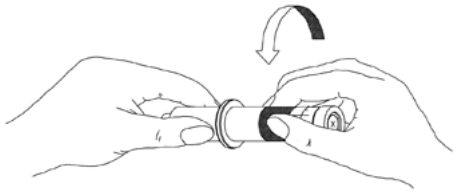
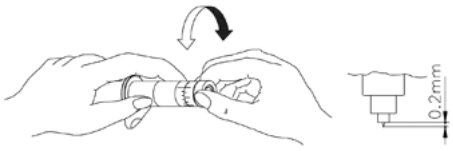
3.5.2 Cut through depth

Make sure that the knife blade sticks out enough of the knife holder, but not too much. The knife top should come through the backing.



N°	Description
1	Knife holder
2	Vinyl
3	Adhesive film
4	Backing

3.5.3 Adjusting the knife depth

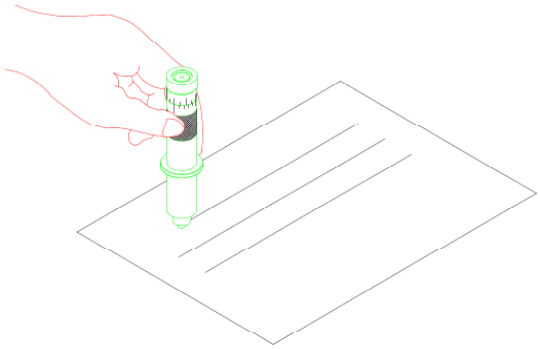
Standard knife holder	Knife holder with nonius
Hold the body (2), as shown in the table, in one hand and use the set screw (3) to adjust the depth(3).  Turn the set screw (3) clockwise to make the blade stick out of the edge of the base part (1). Turn the set screw (3) counter clockwise, will retract the blade. For a first test, turn out the blade until it sticks out about 0.2mm (0.008") out of the base part.	Loosen the base part of the cutting knife. To do this, take the base part in your left hand and twist the ring slightly.  Take the base part and the ring in your left hand and twist the shaft until the knife point sticks out about 0.2 mm (0.008") out of the base part.  Tighten the ring firmly against the base part. This will prevent the cutting blade from coming loose during cutting.

Make a manual test-cut on a small piece of media, of the same type that you are using.

For contour cutting
Adjust the depth until the top layer is cut completely and that you can see a slight scratch on the backing when peeling off. At no times you should be able to see a scratch at the back side of the media.

For cutting through
Adjust the depth until the knife just cuts through the back side of the media.

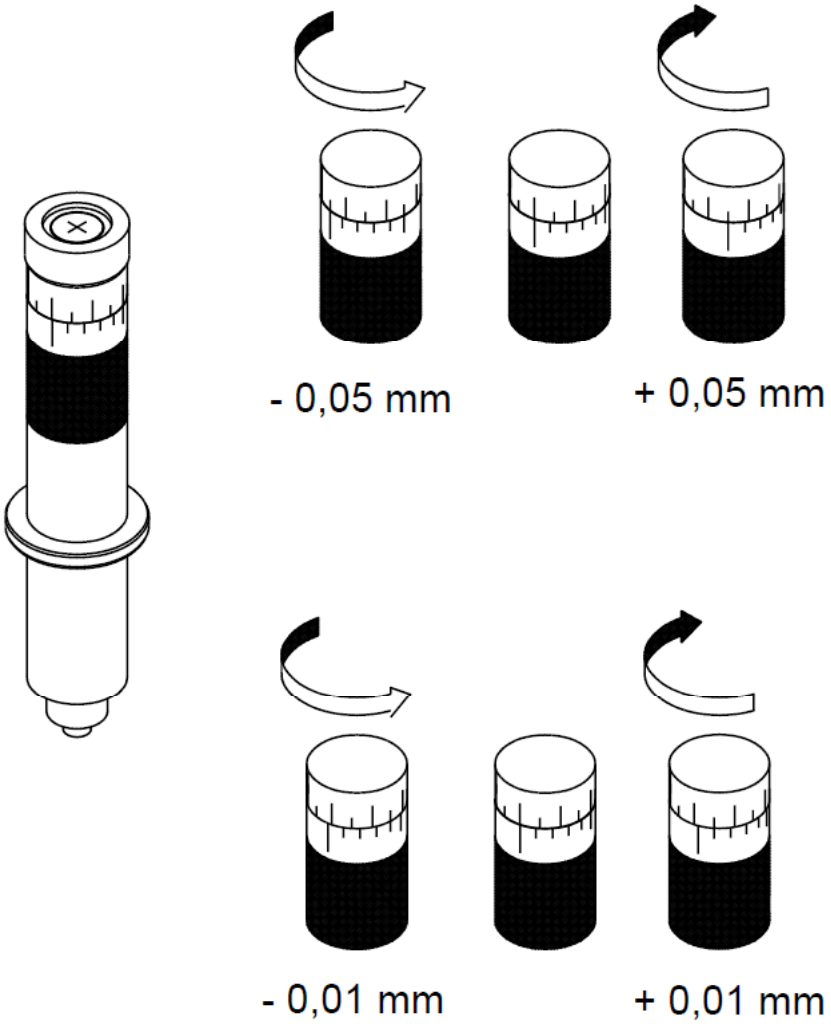
Refer to Cut through on page 100



3.5.4 Features of knife holder with nonius

For some applications it might be convenient to be able to very accurately change the depth of the cutting blade. For those applications, Mutoh can provide you with a knife holder, featuring a nonius (vernier) which makes it possible to adjust the depth of the knife in increments of 0.01 millimetre (0.0004") The upper scale lines make it possible to change the knife depth over 0.05 mm (0.002").

The lower scale (nonius) makes it possible to change the knife depth over 0.01 mm (0.0004").



3.6 Handling and storing media

Before you are able to cut a job, it is necessary to know which media to use.

3.6.1 Handling media

When you handle media, please pay attention to the following:

- Use recommended media in an appropriate environment. Following are the appropriate temperature and humidity ranges for cutting.

	Temperature	Humidity
Recommended working environment	16°C - 32°C	35% - 70%
Rate of change	within 2°C per hour	within 5% per hour

- Do not use creased, damaged, torn, curled, or wrapped media.
- Temperature changes will influence the size of the used media. Before using sheet media, place the sheet in the working environment to have it match to the temperature of the working area.
- Cutting before the media was able to accommodate to the cutting environment may cause media jams due to slippage, tracking problems or creases. This also adversely affects the quality of cutting.
- Do not throw away the box or wrapping bag for storing media.

3.6.2 Precautions on storing media

When storing media, pay attention to the following:

- Do not store media in high temperatures, high humidity, or direct sunlight.
- Store sheet media in the original bag after unpacking.
- Unused roll media must be removed from the scroller, rewound tightly, and stored in the original wrapping bag and the box.
- Do not wet media.

3.7 Loading media

3.7.1 Media width

According to the size of your cutter, following media width can be cut.

Type	Cutting range
Kona 760	Min. 104 mm Max 760 mm
Kona 1400	Min. 104 mm Max 1400 mm
Kona 1650	Min. 104 mm Max. 1650 mm

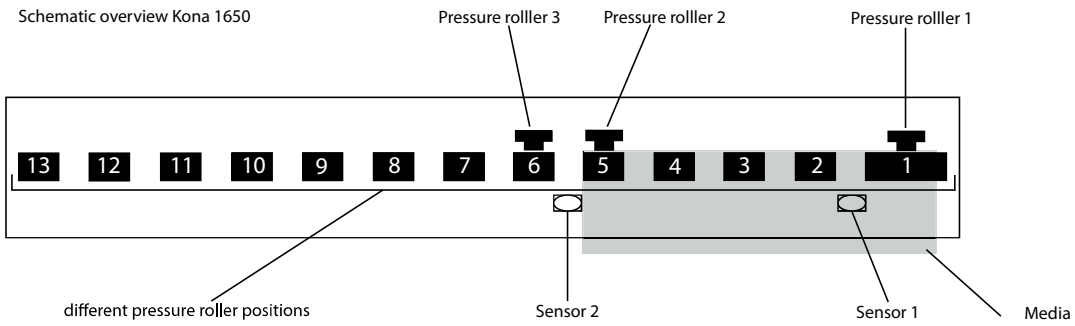
3.7.2 Pressure roller positioning

As you notice, there are 2 pressure rollers on a Kona 760 and 3 pressure rollers on a Kona 1400 or on a Kona 1650.

Positioning the pressure rollers on a Kona 760 is fairly easy. But on a Kona 1400 or Kona 1650 there are more possibilities.

This chapter explains the different possibilities.

In the picture below you find a schematic overview of the cutter. You can divide the picture in different blocks. Please keep below picture in mind to know which item we discuss.

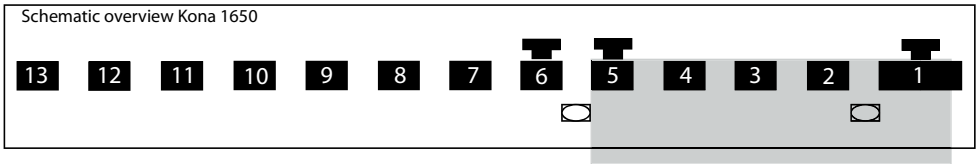


Note

- **The most important factor is that there is always 1 pressure roller in the middle of the grit shaft.**

Possibility 1

Loading **small sized** media



When the media does not reach the second sensor, the second pressure roller will determine the width of the media.

Position the pressure rollers as follows:

	Position pressure roller 2	Position pressure roller 3
Kona 1400	2 - 4	5 - 7
Kona 1650	2 - 5	6 - 8

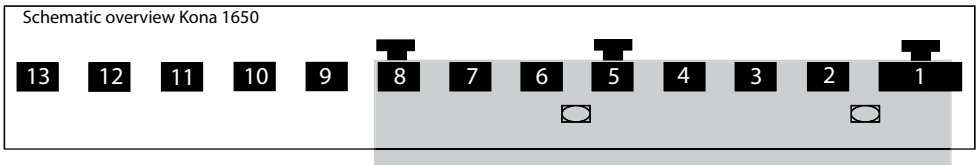
Note

- **The third pressure roller must be positioned in the middle of the shaft and has no influence on the media width.**

  Refer to Pressure roller positioning warning on page 166 **in case a warning message appears.**

Possibility 2

Loading **medium sized** media



Both sensor 1 and sensor 2 are covered. The media width is determined by pressure roller 3.

Position the pressure rollers as follows:

	Position pressure roller 2	Position pressure roller 3
Kona 1400	2 - 4	5 - 7
Kona 1650	2 - 5	6 - 8

Note

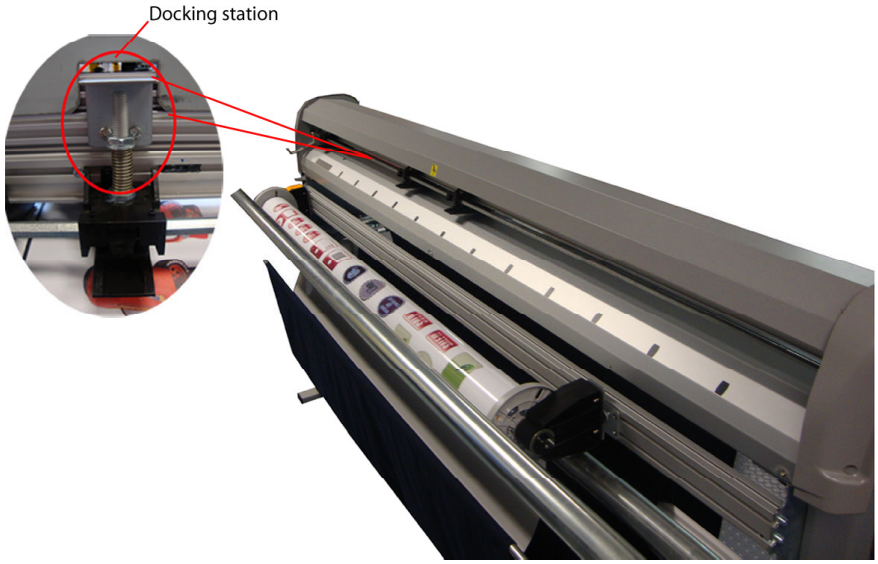
Refer to Pressure roller positioning warning on page 166 **in case a warning message appears.**

Possibility 3

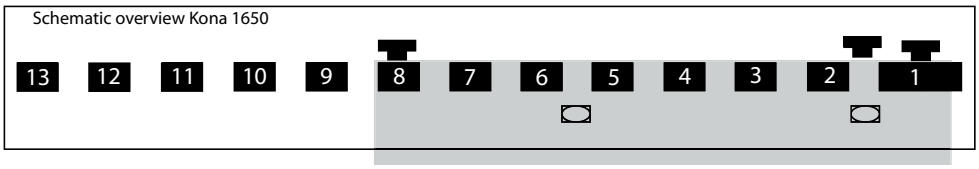
Loading **sensitive medium sized** media

Note

- **When working on a Kona 1400 or Kona 1650 with sensitive media files where it is not wanted to leave any pressure roller marks, it is possible to disable the middle grit roller. To do so, move it to the docking station. The pressure roller will be disabled as soon as you lower them.**



- **Be aware that the cutter may have less tracking when doing this.**



Both sensor 1 and sensor 2 are covered. The media width is determined by pressure roller 3. Position the pressure rollers as follows:

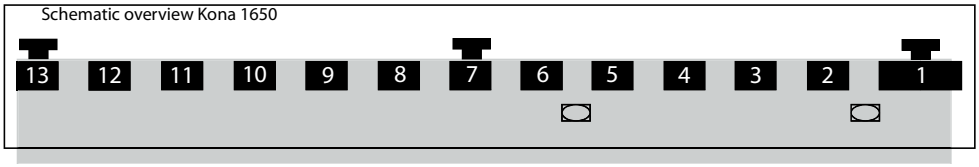
	Position pressure roller 2	Position pressure roller 3
Kona 1400	Disabled	5 - 7
Kona 1650	Disabled	6 - 8

Note

Refer to Pressure roller positioning warning on page 166 **in case a warning message appears.**

Possibility 4

Loading **full sized** media.



Both sensor 1 and sensor 2 are covered. The media width is determined by pressure roller 3.
Position the pressure rollers as follows:

	Position pressure roller 2	Position pressure roller 3
Kona 1400	5 - 7	8 - 11
Kona 1650	6 - 8	9 - 13

Note

Refer to Pressure roller positioning warning on page 166 **in case a warning message appears.**

3.7.3 Loading sheet media

Configuration to start from

- The pressure rollers are raised.
- The rear media collection bag is open and empty.
- Open the front media collection bag when the cutting job is smaller than 4m.
- Close the front media collection bag when the cutting job is larger than 4m.
- Remove the media support rollers

Media loading procedure

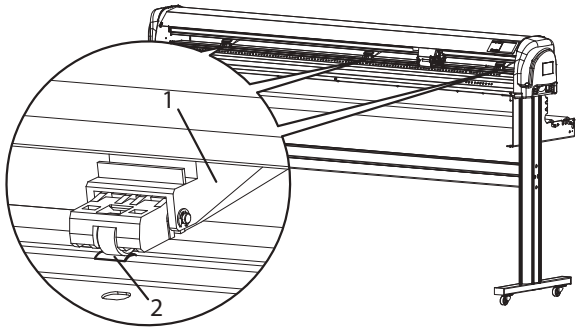
Step 1: Guide the media under the pressure rollers at the front of the cutter.

Note

- **In case of working with curled media, refer to** Loading curled media on page 66**.**

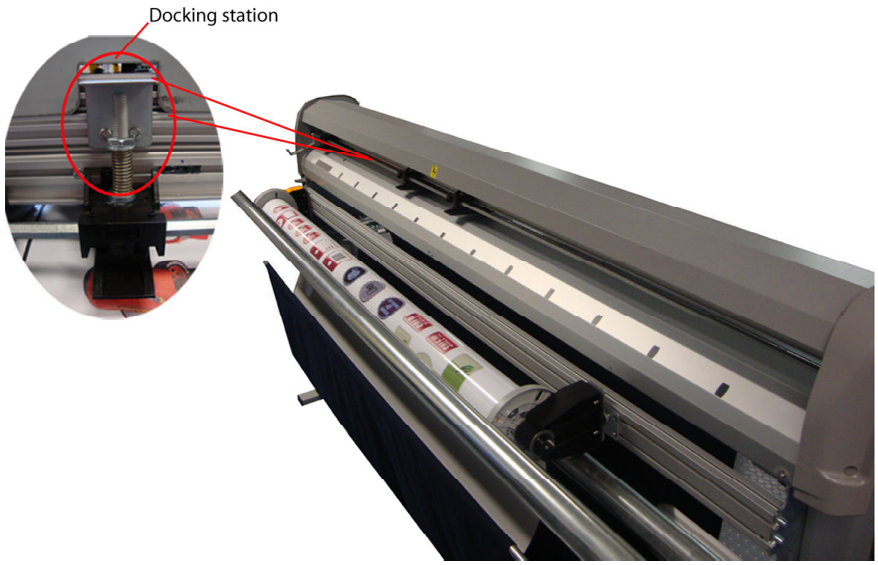
Step 2: Position the pressure rollers (1) so that every pressure roller faces a grit roll (2). Each pressure roller has a tactile and audible click system which makes it easier to position them correctly.

Refer to Pressure roller positioning on page 48



Note

- **When working on a Kona 1400 or Kona 1650 with sensitive media files where it is not wanted to leave any pressure roller marks, it is possible to disable the middle grit roller. To do so, move it to the docking station. The pressure roller will be disabled as soon as you lower them.**



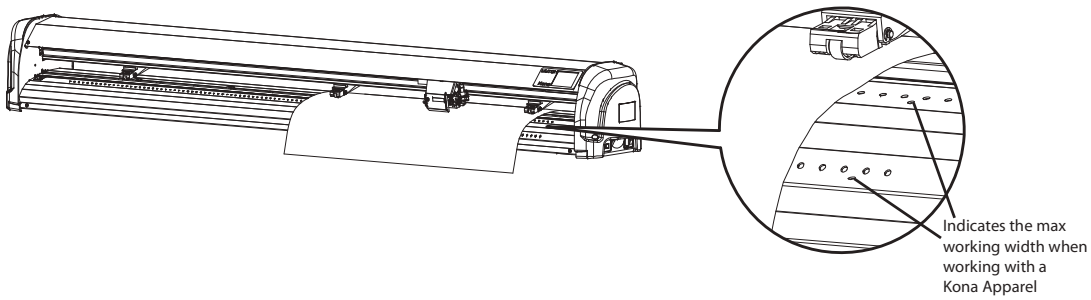
- **Be aware that the cutter may have less tracking when doing this.**
- **Be aware that when working on full media width, the 3 pressure rollers must be used.**

Step 3: Select the media measure method.

Refer to Load mode on page 96

Step 4: Make sure that about half of the sheet hangs in front of the machine and half hangs at the back. This will make it easier to align the media correctly.

Step 5: Load the media straight. To help you, rulers are drilled in the front platen.



Step 6: Make sure that the media is cut off straight at the front to avoid media initialization mismatches.

Step 7: Lower the pressure rollers.

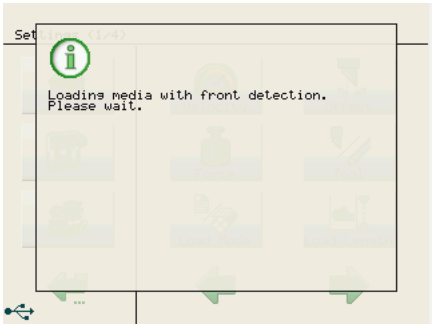
Note

- **Make sure not to get stuck on the pressure roller lever. This could damage your clothes.**

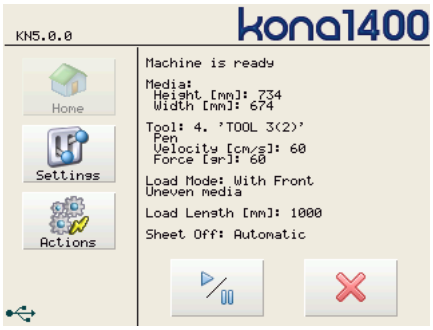
Note

- **The head will move fast over the media. Be careful not to pinch your fingers during this action.**

Step 8: The cutter will measure the paper and displays a message:



Step 9: When no problems occur, the main screen appears. The home window displays the usable width.



Note

- **In some cases, the cutter gives a warning screen for example if there is no tool installed, the media is too thick, ...**
  - Select ignore in case you want to proceed with an undetected tool.
  - In case you forgot to install a tool, install the tool of your choice and select retry. The cutter will measure the tool height and proceed as normal.

Step 10: The media is now properly loaded and you are ready to cut.

Note

- **Cut files are clipped in case the cut file is larger than the media width.**

3.7.4 Loading a roll of vinyl using the media support rollers

Note

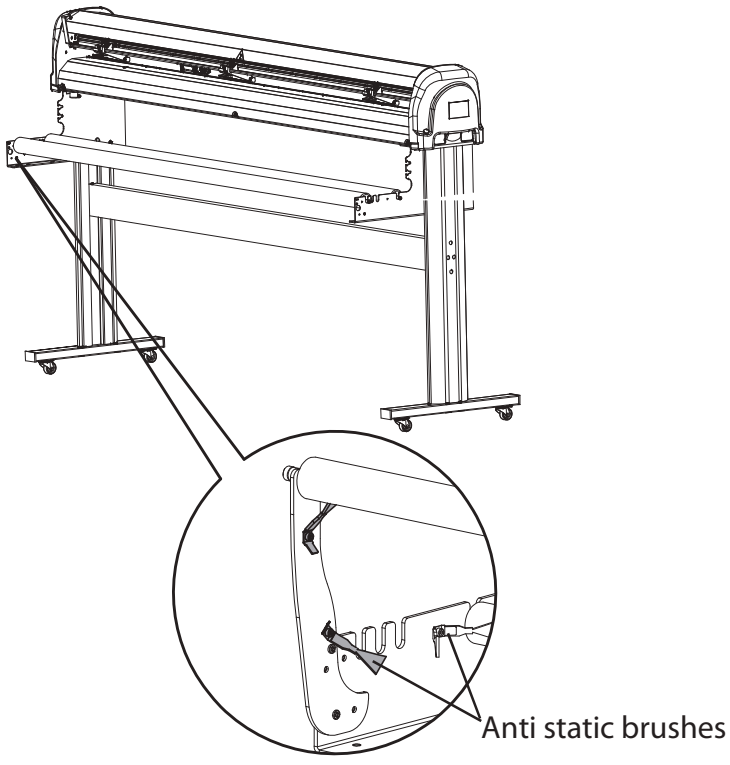
- **The media support rollers are not standard on a Kona 760. This procedure is only possible when installing this option.**

Configuration to start from

- The pressure rollers are raised.
- The media support rollers are installed correctly.

Note

- **Make sure the anti static brushes are installed on the support system. This to remove all static electricity.**



- The rear media collection bag is open and empty.
- The front media collection bag is open (when the cutting job is smaller than 4m).
- The front media collection bag closed (when the cutting job is larger than 4m).

Media loading procedure

Step 1: Place the vinyl on the media support rolls. Make sure the space between the rolls is smaller than the diameter of the core. Otherwise, the core will fall through the rolls when the roll is (almost) empty.

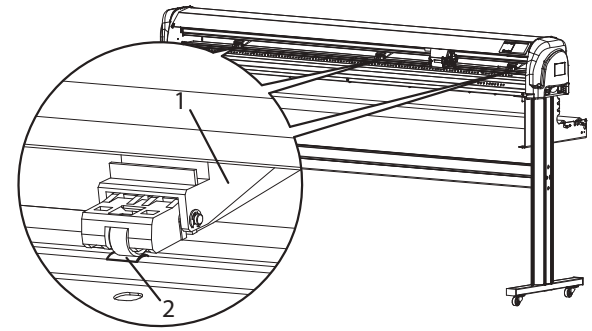
Step 2: Guide the media under the pressure rollers at the front of the cutter.

Note

- **In case of working with curled media, refer to** Loading curled media on page 66

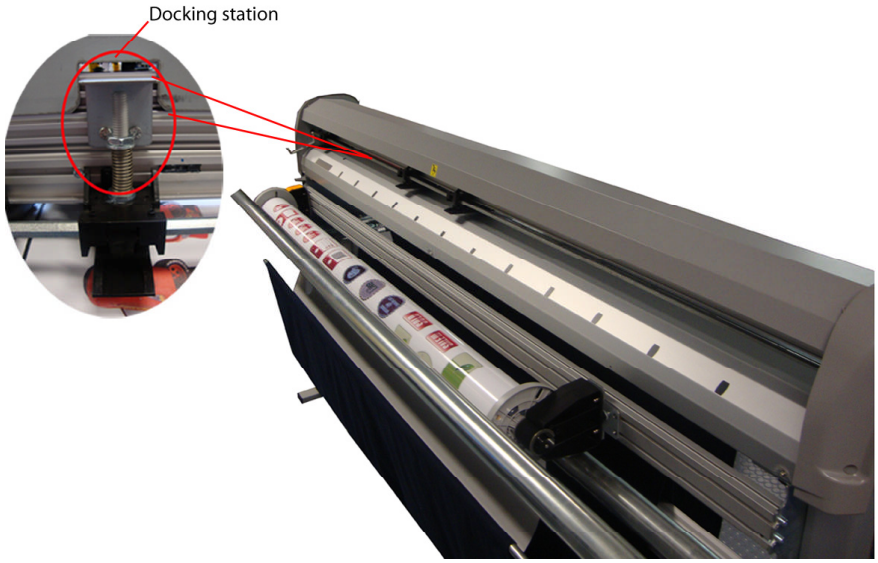
Step 3: Position the pressure rollers (1) so that every pressure roller faces a grit roll (2). Each pressure roller has a tactile and audible click system which makes it easier to position them correctly.

Refer to Pressure roller positioning on page 48



Note

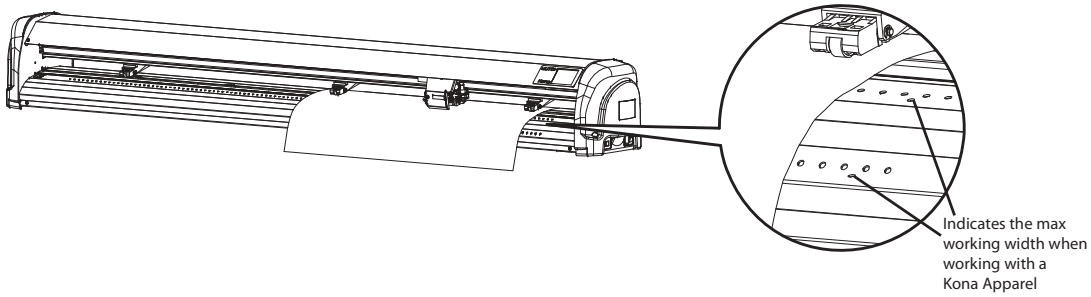
- **When working on a Kona 1400 or Kona 1650 with sensitive media files where it is not wanted to leave any pressure roller marks, it is possible to disable the middle grit roller. To do so, move it to the docking station. The pressure roller will be disabled as soon as you lower them.**



- **Be aware that the cutter may have less tracking when doing this.**
- **Be aware that when working on full media width, the 3 pressure rollers must be used.**

Step 4: Load the media properly:

- It is best to hold the front edge of the media in the middle with one hand and with the other hand the roll itself.
- While holding the roll firmly into position, pull the front edge of the media forward so that there is an even tension across the whole width of the roll (= equal tension method)
- Do NOT use the drilled holes to align a roll of media! Rolls can only be correctly installed using the equal tension method.
- The holes will help you monitoring if the media is not meandering too much.



Step 5: Verify the media is cut off straight at the front to avoid media initialization mismatches.

Step 6: Select the media measure method.

Refer to Load mode on page 96

Note

- **Make sure not to get stuck on the pressure roller lever, this could damage your clothes.**

Step 7: Lower the pressure rollers as soon as all the correct settings have been made.

Refer to Load length on page 98

Refer to Auto shuffle on page 104

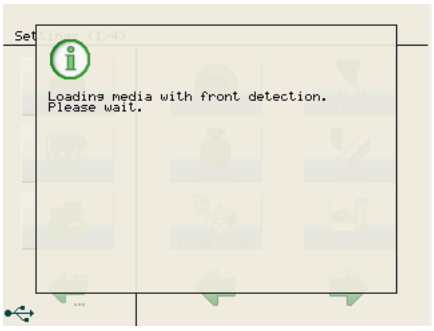
Note

- **The head will move fast over the media. Be careful not to pinch your fingers during this action.**

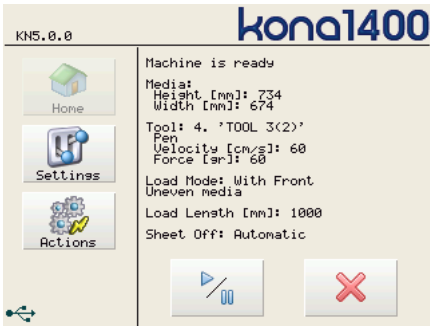
Note

- **Cut files are clipped in case the cut file is larger than the media width.**

Step 8: The cutter measures the media and displays a message:



Step 9: When no problems occur, the main screen appears. The usable width of media is displayed:



Note

- **In case there is no tool installed, the cutter gives a warning screen.**
  - Select ignore in case you want to proceed without any tools.
  - In case you forgot to install a tool, install the tool of your choice and select retry. The cutter will measure the tool height and proceed as normal.

Step 10: The media is now properly loaded and you are ready to cut.

3.7.5 Loading a roll of pre-printed vinyl using the roll-off system

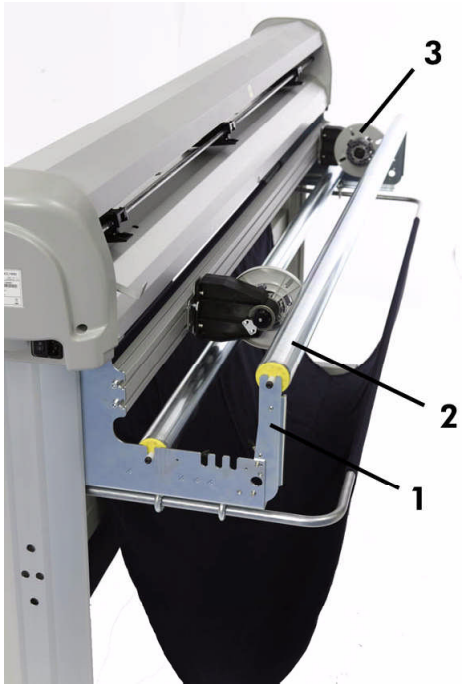
Note

- **The media roll-off system provides extra protection of your files. When only working with the media support rollers, the media is in constant contact with these rollers which could damage sensitive media files.**
- **Be aware that the media roll-off system is not standard on a Kona 760, 1400 and 1650. This procedure is only possible when you have this option installed.**

Configuration to start from

- The pressure rollers are raised.
- The roll-off system is installed correctly:

1. Install deflection roll bracket.
2. Install the deflection roll.
3. Install the media holders.

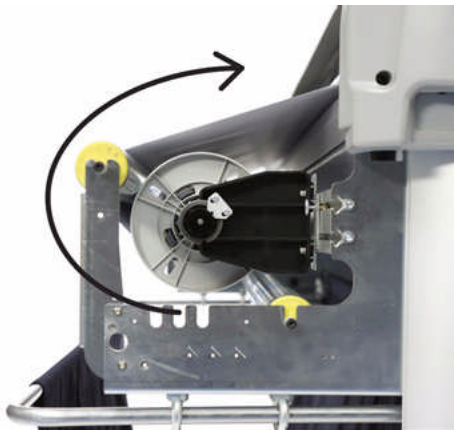


- The rear media collection bag is open and empty.
- The front media collection bag is open (when the cutting job is smaller than 4m).
- The front media collection bag closed (when the cutting job is larger than 4m).

Media loading procedure

Step 1: Install the pre-printed media roll between the media holders. Position the roll and tighten the media holders by fixing the thumb screws.

Step 2: Guide the media as shown below:

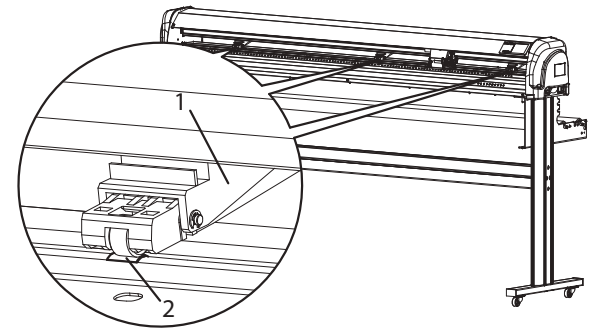


Note

- **In case of working with curled media, refer to** Loading curled media on page 66**.**

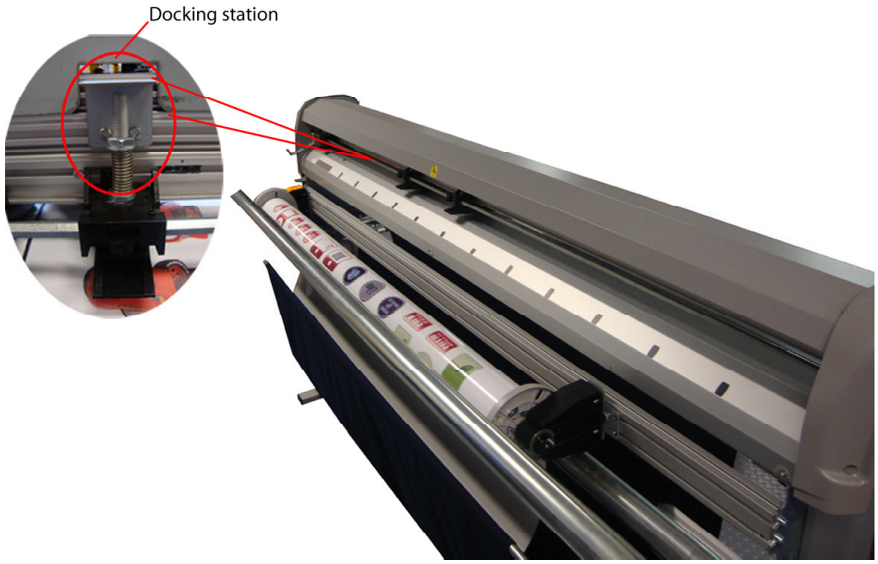
Step 3: Position the pressure rollers (1) so that every pressure roller faces a grit roll (2). Each pressure roller has a tactile and audible click system to make it easier to position them correctly.

Refer to Pressure roller positioning on page 48



Note

- **When working on a Kona 1400 or Kona 1650 with sensitive media files where it is not wanted to leave any pressure roller marks, it is possible to disable the middle grit roller. To do so, move it to the docking station. The pressure roller will be disabled as soon as you lower them.**



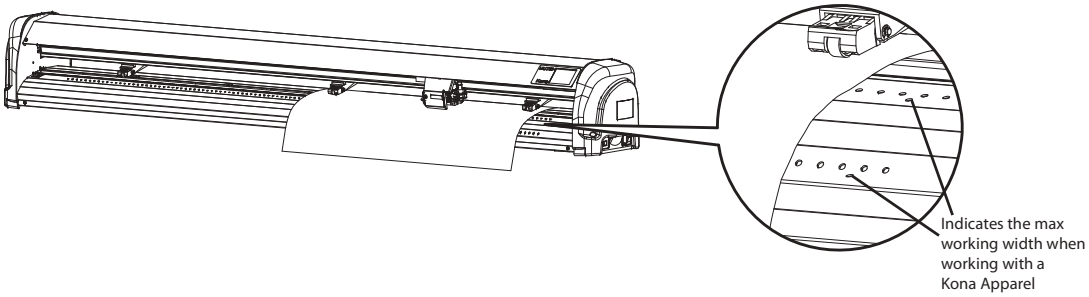
- **Be aware that the cutter may have less tracking when doing this.**
- **Be aware that when working on full media width, the 3 pressure rollers must be used.**

Step 4: Select the media measure method.

Refer to Load mode on page 96

Step 5: Load the media properly:

- It is best to hold the front edge of the media in the middle with one hand and with the other hand the roll itself.
- While holding the roll firmly into position, pull the front edge of the media forward so that there is an even tension across the whole width of the roll (= equal tension method)
- Do NOT use the drilled holes to align a roll of media! Rolls can only be correctly installed using the equal tension method.
- The holes will help you monitoring if the media is not meandering too much.



Step 6: Make sure the media is cut off straight at the front to avoid media initialization mismatches.

Step 7: Lower the lever as soon as all the correct settings have been made.

Refer to Load length on page 98

Refer to Auto shuffle on page 104

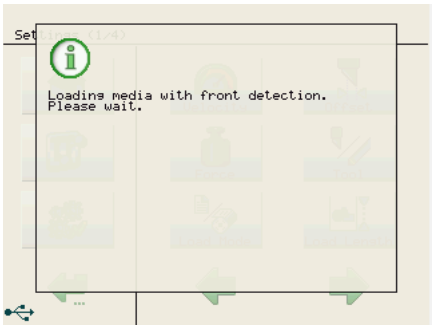
Note

- **Make sure not to get stuck on the pressure roller lever, this could damage your clothes.**

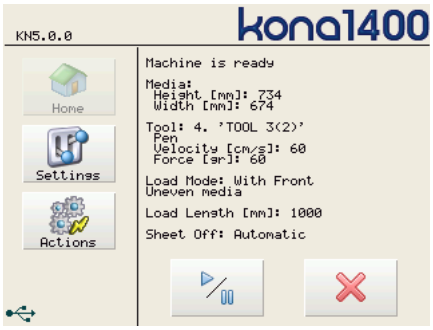
Note

- **The head will move fast over the media. Be careful not to pinch your fingers during this action.**

Step 8: The cutter measures the media and displays a message:



Step 9: When no problems occur, the main screen appears. The usable width of media is displayed:



Note

- **In case there is no tool installed, the cutter gives a warning screen.**
  - Select ignore in case you want to proceed without any tools.
  - In case you forgot to install a tool, install the tool of your choice and select retry. The cutter will measure the tool height and proceed as normal.

Step 10: The media is now properly loaded and you are ready to cut.

Step 11: You are ready to cut.

3.8 Loading curled media

Next to multiple kinds of media, the Kona is also able to cut curled media.

However, to perform this action, there are some extra items you need to keep in mind.

Please follow the procedure below to load curled media properly.

Step 1: Determine the type of media e.g. sheet media and install the correct configuration.

Refer to Configuration to start from on page 52 **when loading sheet media**

Refer to Configuration to start from on page 56 **when loading a roll of vinyl using the media support rollers.**

Refer to Configuration to start from on page 61 **when loading a roll of pre-printed vinyl using the roll-off system.**

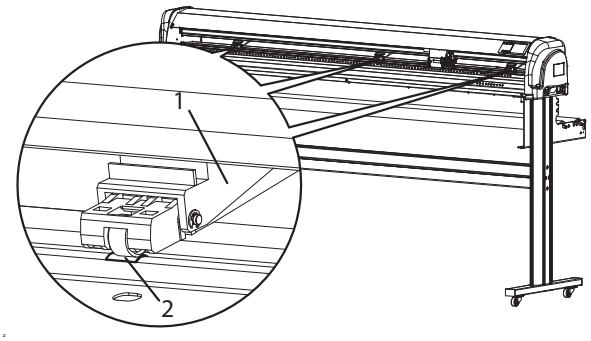
Refer to Bounding box specifications on page 140

Step 2: Guide the media under the pressure rollers at the front of the cutter.

- Verify that the front edge of the media is loaded at least 7 cm past the cutting head.
- Make sure that the rear of the media is still covering the sensors when the cutter measures the cutfile. We advise a rear safety margin of at least 30 cm.

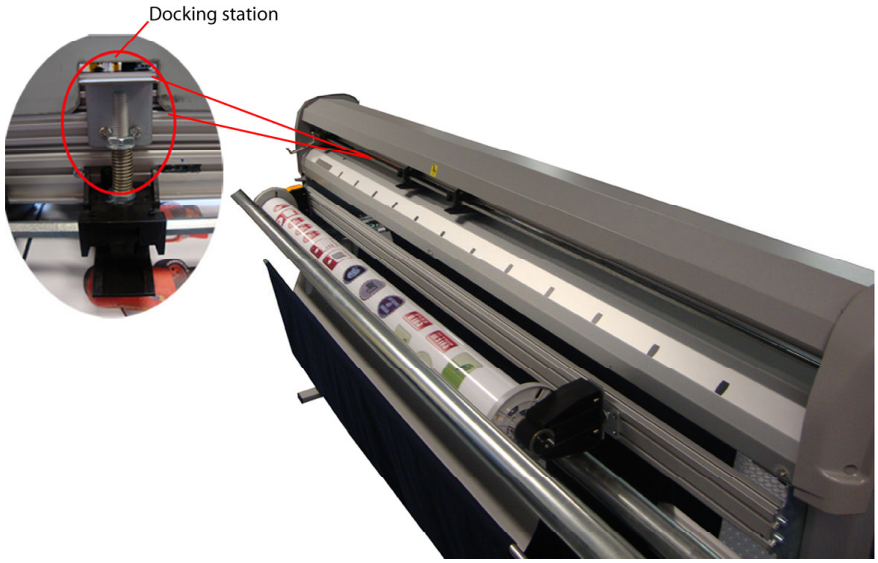
Step 3: Position the pressure rollers (1) so that every pressure roller faces a grit roll (2). Each pressure roller has a tactile and audible click system which makes it easier to position them correctly.

Refer to Pressure roller positioning on page 48



Note

- **When working on a Kona 1400 or Kona 1650 with sensitive media files where it is not wanted to leave any pressure roller marks, it is possible to disable the middle grit roller. To do so, move it to the docking station. The pressure roller will be disabled as soon as you lower them.**



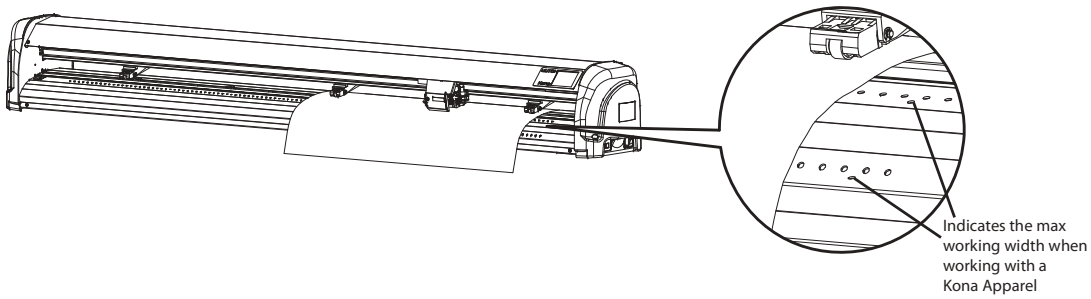
- **Be aware that the cutter may have less tracking when doing this.**
- **Be aware that when working on full media width, the 3 pressure rollers must be used.**

Step 4: Choose the appropriate media measure method:

- With front Uneven media
- Without front Uneven Media

Refer to Load mode on page 96

Step 5: Load the media straight. To help you, rulers are drilled in the front platen.



Step 6: Verify the media is cut off straight at the front to avoid media initialization mismatches.

Step 7: Lower the pressure rollers.

Note

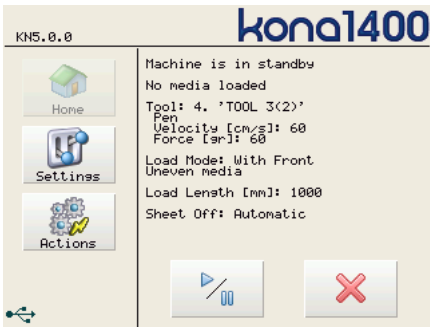
- **Make sure not to get stuck on the pressure roller lever, this could damage your clothes.**

Note

- **The head will move fast over the media. Be careful not to pinch your fingers during this action.**

Step 8: The cutter will measure the paper and displays a message:

Step 9: When no problems occur, the main screen will appear. The home window displays the usable width of media:



Note

- **In some cases, the cutter gives a warning screen for example if there is no tool installed, the media is too thick, ...**
  - Select ignore in case you want to proceed with an undetected tool.
  - In case you forgot to install a tool, install the tool of your choice and select retry. The cutter will measure the tool height and proceed as normal.

Step 10: The media is now properly loaded and you are ready to cut.

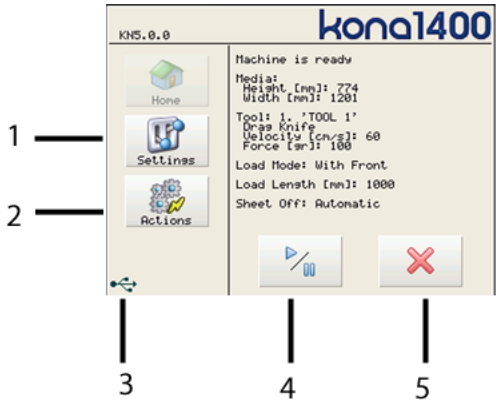
Note

- **Cut files are clipped in case the cut file is larger than the media width.**

Chapter 4 Operation panel

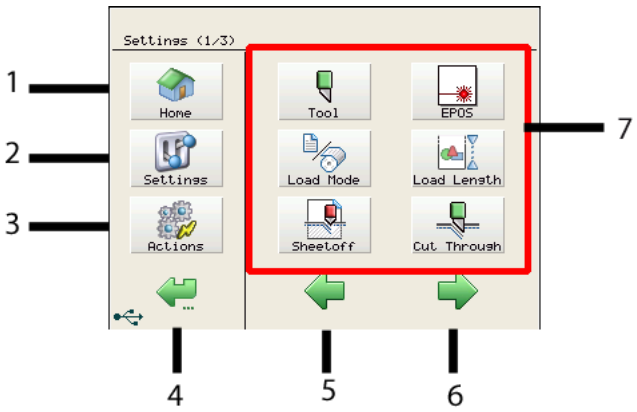
4.1 Explaining the different buttons

4.1.1 Main menu



N°	Description	Extended description
1	Settings button	Open the settings menu
2	Actions button	Open the actions menu
3	USB indication	This icon will appear if the Kona is connected via the USB and the driver is correctly installed.
4	Play / pause button	Pause or resume a job
5	Cancel button	■ In case there is no cutting job active, the Kona displays a message stating there is nothing to cancel. ■ In case there is a cutting job active, a new window appears asking if your are sure you want to clear all received data. Select no to ignore this, the cutter will resume its cutting job. Select yes to stop the current cut job. After selecting Yes, the cutter returns to its origin.

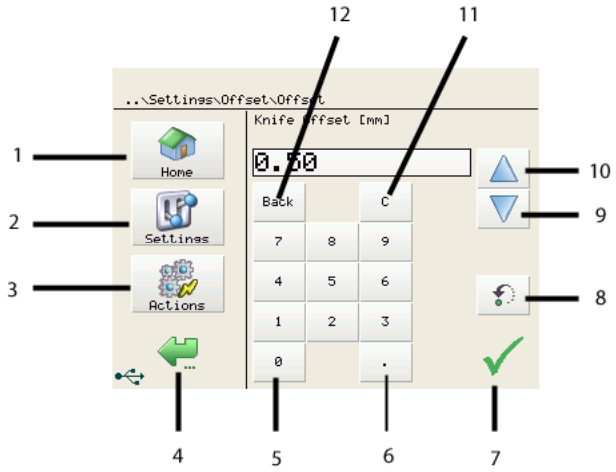
4.1.2 Settings or actions menu



N°	Description	Extended description
1	Home button	Go back to the home menu (the menu shown above)
2	Settings button	Open the *settings* menu
3	Actions button	Open the *actions* menu
4	Back / cancel button	Go *back* to the previous menu in the hierarchy
5	Previous button	Shows you the previous page within a menu level
6	Next button	Shows you the next page within a menu level
7	Menu button	*Open* the respective menu

4

4.1.3 Adjust value menu



N°	Description	Extended description
1	Home button	Go back to the home menu (the menu shown above)
2	Settings button	Open the *settings* menu
3	Actions button	Open the *actions* menu
4	Back / cancel button	Go *back* to the previous menu in the hierarchy and/or *cancel* the settings change
5	Numeric keyboard	Type the requested set value
6	Comma	In some screens this comma button appears in case a comma might be necessary
7	Save button	*Save* the new value
8	Reset button	Resets the current input to the previous value.
9	Decrease button	*Decrease* the value with one digit
10	Increase button	*Increase* the value with one digit
11	Clear button	Resets the value to 0.
12	Backspace	Returns one digit.

Note

- **It is impossible to exceed a maximum value. The cutter will beep twice if you try.**
- **The value is displayed in blue when the chosen value is smaller than the minimum value.**

4.2 Menu overview

4.2.1 Tree diagram

Main menu	Sub menus		BOLD = default value		More info
Settings 1/3	Tool (1/2)	Type	**Drag knife**		page 77
			Pen		
		Velocity	1 - **60** - 100 cm/s		page 78
		Force	Force	20 - **100** - 450 g	page 80
			Test		
		Offset	Offset		page 82
			Test		
	Tool (2/2)	Swap alert	OFF		page 85
			ON		
		Management			page 86
		Up velocity	1 - 100 cm/s		page 90
		Up height	1 mm <**2 mm**> 15 mm		page 91
	Epos	Epos align	**Automatic**		page 92
			Manual position		
			Manual color		
		Optimize	Distance X		
			Distance Y		
		Color	**On**		
			OFF		
	Load mode	**With front**			page 96
		Without front			
		With front Uneven media			
		Without front Uneven media			
	Load length		10 cm <**1 m** > 10 m		page 98
	SheetOff	Mode	**Automatic**		page 99
			Manual		
			Disabled		
		Margin	0 < **5mm** > 250 mm		
		Velocity	min. 10 max. 100 cm/s		
	Cut through (1/2)	Tool	**<Tool 2>**		page 100
		Velocity	1 - **60** - 100 cm/s		
		Force	20 - **100** - 450 g		
		Test			
	Cut through (2/2)	Up distance	**0.1 mm** - 2 mm		
		Down distance	0 mm <**10 mm** > 100 mm		
		Test			

Main menu	Sub menus		BOLD = default value	More info
Settings 2/3	Smoothing		**On**	page 102
			OFF	
	Resolution		0.010 mm	page 103
			0.025 mm	
	Job focus		**Accuracy**	page 104
			Speed	
	AutoShuffle		**ON**	page 104
			OFF	
	Origin		**Lower Right**	page 105
			Center	
	Page Mode		0 - **1** - 2	page 106
Settings 3/3	Protocol	Emulation	MGL	page 107
		VS/SF/AS	**Accept**	
			Ignore	
	Language		**English** / Nederlands / Francais / Deutsch / Espanol / Italiano / Portugues / Polski / Greek	page 108
	Diagnostics			page 108
	Screen	Beep	**OFF**	page 109
			ON	
		Contrast	15 - <**25**> - 40	
		Brightness	0 - <**50**> - 100	
		Animation	Wait - 0 (= OFF) - <**3 min**> - 60 MIN	
			Play	
	Information	Firmware		page 110
		Machine		
		Company		
	User			page 111

Main menu	Sub menus		BOLD = default value		More info
Actions 1/2	Jogging				page 112
	Origin				page 113
	Cut Through	Trim Poster	Length		page 114
			Width		
	Contour cut	MultiFrame	Jobs		page 117
			Sheet Off between		
			Sheet Off afterwards		
		SingleFrame	Jobs		
			ShtOff btw		
			ShtOff aft		
		Manual	Length		
			Width		
			Direction	No reverse	
				Reverse	
		BC read			
	Tool Load				page 122
	Sheetoff		Yes / **NO**		page 123
Actions 2/2	Copies		0 - **1** - 100		page 124
	Epos Read				page 125

4.2.2 Settings 1/3

Tool

Select this menu to select the:

- Type of tool on page 77
- Velocity on page 78
- Force on page 80
- Offset on page 82
- Swap alert on page 85
- Management on page 86
- Up velocity on page 90
- Up height on page 91

Type of tool

Set the type of the active tool. Depending on the installed tool, an offset needs to be taken into account.

Refer to Offset on page 82 **for all information about the offset principle.**

Refer to Replace cutter blade on page 39 **for more information on how to replace the blade.**

Set the tool as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *Tool*

- *Type*

Step 2: Select the tool

- Drag knife
- Pen

Step 3: Confirm with ✓

Step 4: Perform the EPOS alignment check to be sure the distance between EPOS sensor and knife/pen point is set correctly. Otherwise, it might occur that the data is cut with an offset.

Refer to Epos on page 92

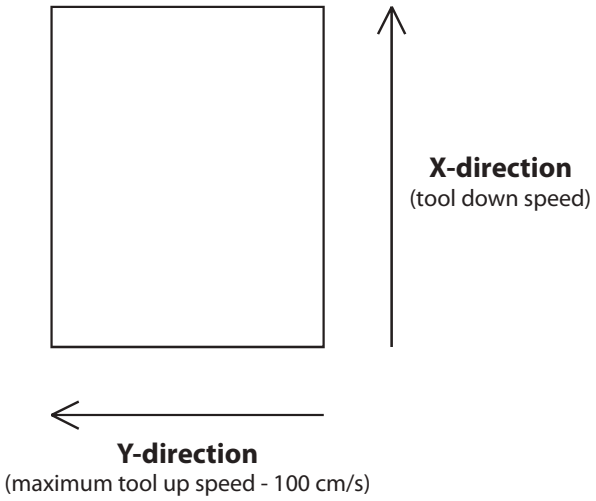
Velocity

Set the tool down speed of the active tool.

The speed can be set as well on the cutter panel as in the cut software. When the speed is set in the software, the panel speed is overruled when the function VS/ZF/AS is enabled (by default).

Refer to Protocol on page 107

In this case, the tool down speed is the speed of measuring up the box in X-direction. The tool speed in Y-direction will always be the maximum tool up speed (100 cm/s). It is possible to gain some time when you set the real cutting speed in the software and the bounding box measuring speed on the control panel.



Note that there is also a throughcut speed. This speed can be set in the separate *Cut Through* menu.

Refer to Epos Alignment on page 100

Set the velocity as follows:

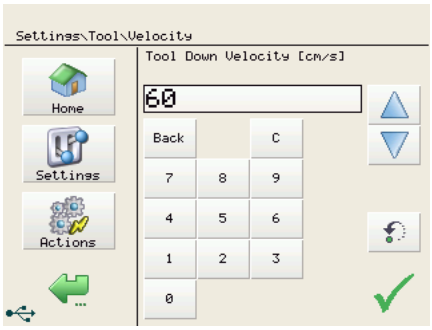
Step 1: Press the following buttons in order:

- *Settings*

- *Tool*

- *Velocity*

Step 2: Change the value to the desired speed and confirm with ✓ or cancel with



Force

To set the force of the active tool. Tool force (cutting pressure) is the amount of downward pressure that the cutter applies on the knife / pen. We merely want to point out that you have to cut your design with the lowest possible pressure that gives no trouble to weed. Some media require only 20 grams to be cut completely through. In that case there is no need to apply 100 grams of pressure.
Too much pressure can cause a decrease of quality. For cutting through applications we recommend 250 grams. The same principle as for contour cutting, the lowest possible pressure is advised, not only for the output quality but also for the lifetime of the cutting mat.

Be sure that the knife depth is set correctly.

Refer to Setting the correct knife depth on page 43

Please follow the procedure below to set the force

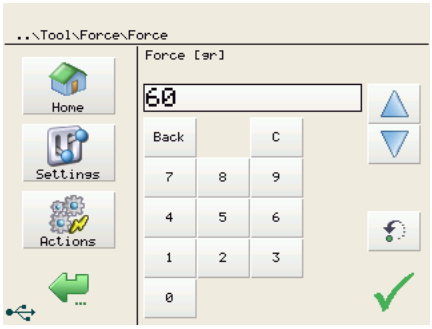
Step 1: Press the following buttons in order:

- *Settings*

- *Tool*

- *Force (2x)*

Step 2: Change the value to the desired force and confirm with ✓ or cancel with

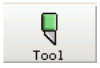


Follow the procedure below to *test* the actual settings:

Step 1: Press the following buttons in order:

- *Settings*

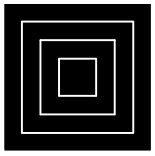
- *Tool*



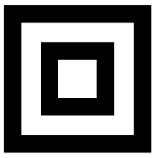
- *Force*

- *Test*

Step 2: When performing the test, a pattern is cut using the current *force* value.



Step 3: Weed out the following squares.



Step 4: Check if the top layer is cut completely and that you can see a slight scratch on the backing.

Offset

Note

- **If the active tool is a Pen tool, then the Knife Offset button is disabled.**

One of the most important factors to obtain good quality, is the offset. As you can see in the figure below, the knife offset (*1*) is the distance between the knife centre and the knife tip.

Accurate measurement of the used *offset* is very difficult and requires specialized equipment. You should therefore adjust the offset (1) by checking real cutting results on the media you will use. Mutoh helps you doing this by way of a semi-automatic offset adjustment routine, integrated into your cutter.

When a pen is loaded, no offset is necessary as the pen point is in the centre of the pen head. When loading a drag knife, the pen tip is not in the centre of the pen head and an offset is necessary.

Please follow the procedure below to perform this test:

Step 1: Press the following buttons in order:

- *Settings*

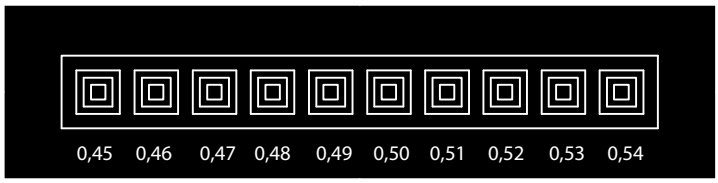
- *Tool*

- *Offset*

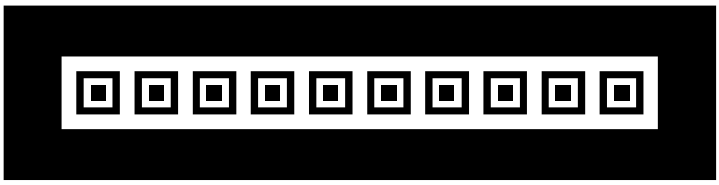
- *Test*

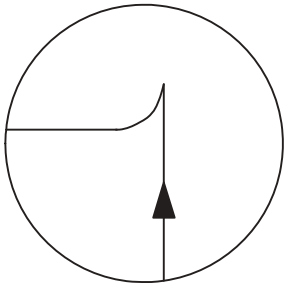
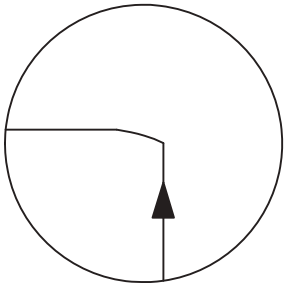
Step 2: Select *Yes* to perform the test.

Step 3: The machine cuts a series of squares, each with a different offset.



Step 4: Weed out the boxes as shown below, check the patterns and determine which of them gives best quality. Especially look for good quality of the corners and easy weeding.

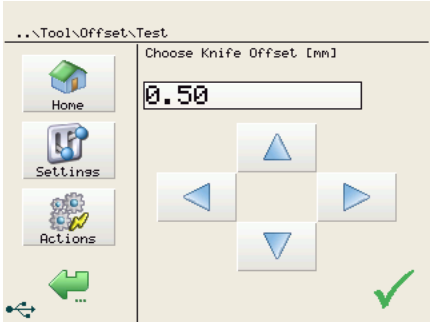


The offset value is ***larger*** than the optimum knife offset	The offset value is ***smaller*** than the optimum knife offset
In this case, a square corner is cut as follows:  The cutting direction is indicated by the arrow. The corners are not well formed. The cutter cuts too far in the angular points.	In this case, a square corner is cut as follows:  The cutting direction is indicated by the arrow. The corners are not well formed. The cutter did not cut far enough in the angular points.

Note

- **In case none of the squares shows a good offset, look for the best square, select this one and perform a new test cut.**

Step 5: Point the knife over the optimum knife offset using the left-right arrow keys and confirm with ✓. Use the up-down arrows to move the media forward or backwards to show the test pattern once more.



Swap alert

It is possible to configure multiple tools. The Kona has an integrated swap alert system. This system will give you a warning when a tool change is needed.

You are able to enable or disable this swap alert system.

Press the following buttons in order:

- *Settings*

- *Tool*

- *next page*

- *Swap alert*

Make your preferred choice:

- **On**: If a tool change is requested in a plot file, you will hear a beep and a message is shown which tool to insert
- **Off**: If a tool change is requested in a plot file, you get no alert. The machine continues cutting with the tool that is loaded..

Note

- **In some conditions, even when the setting is put to off, an alert has to be given:**
  - A new tool with a different type.
  - No tool loaded yet.

Management

This feature gives the possibility to create and manage different tools. these tools can be of different type and can have their own specific settings.

A maximum of 9 tools can be used of which their are 3 standard tools pre-defined.

Press the following buttons in order to open the tool manager window:

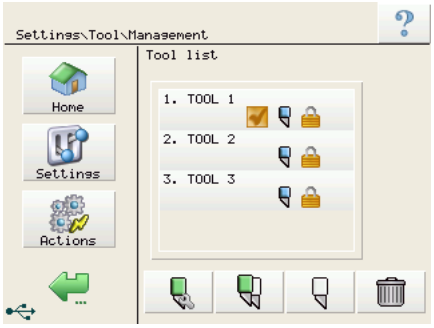
- *Settings*

- *Tool*

- *Next page*

- *Management*

The Tool management window opens:

Tool management window	Icon	Icon information
		Indicates that this tool is the loaded tool.
		Indicates the type of tool (drag knife or pen).
		Indicates that the tool is locked and can't be deleted. The settings however can still be changed.
		To change the settings of the tool. **Refer to** Changing the tool settings: on page 87
		Duplicate a tool in the tool list. The settings of the selected tool are copied in a new tool. **Refer to** Duplicating a tool on page 88
		Make a new tool with the default settings **Refer to** Creating a new tool on page 89
		Delete a selected tool. **Refer to** Deleting a tool on page 89
		Used to scroll through the tool list
		Used to scroll through the tool list

Note

- **Tool 1, 2 and 3 are default tools in the firmware and can not be deleted. These tools will always be locked**

Changing the tool settings:

Note

- **If the selected tool is the standard tool (tool 1, 2 &3), then the tool number and lock settings can't be changed.**

Step 1: Click on the tool to select the tool of which you want to change the settings.

Step 2: Press the *settings* button.

Step 3: The settings window opens. you are now able to change the tool settings.

Icon	Icon name	Description	
	Number	Set / Change the number of the selected tool. ■ In case a number is chosen which is already taken, the Kona suggests a new number	
	Name	Change the name of the selected tool	
			Save the new name and return to the previous window
			Cancel and return to the previous window without changing anything
			Shift button, used for capital characters
			Back button. Delete the last character of the name
			Character set button. When pressing this button, you will switch between: ■ Small characters - Large characters ■ Numbers ■ Language depended small characters - Large characters ■ Language depended signs
			Switch between a Qwerty and an Azerty keyboard
			Reset any changes done in the window back to the previous name.
			Clear button. Clear the name string on the keyboard.
	Type	Decide if the selected tool is a knife or a pen	
	Velocity	Set the velocity of the selected tool	
	Force	Set the tool force of the selected tool. This is the amount of downward pressure that the cutter applies on the knife / pen.	

Icon	Icon name	Description
	Offset	Set the tool offset of the selected tool. In case the selected tool is a pen, the Offset button is disabled.
	Location	**For Kona apparel only**
	Lock	The lock prevents the tool of being deleted in the Management window. The settings of the selected tool can still be changed
	Defaults	Resets the tool settings to the default settings of the selected tool according to it's type

Duplicating a tool

In case you have a tool that is slightly similar to an existing tool in the library, you can duplicate this tool.

To do so, proceed as follows:

Step 1: Click on the tool to select the tool of which you want to change the settings.

Step 2: Press the *duplicate* button.

The tool is now duplicated. In case you want to change some settings of this tool, refer to Changing the tool settings: on page 87

Note

- **In case the maximum number of tools is reached, following message is displayed:**

Creating a new tool

In case you want to add a new tool to the management library, proceed as follows:

Step 1: Press the *New tool* button.

- A new tool is added to the library. To adjust the tool settings, refer to Changing the tool settings: on page 87

Note

- **In case the maximum number of tools is reached, following message is displayed:**

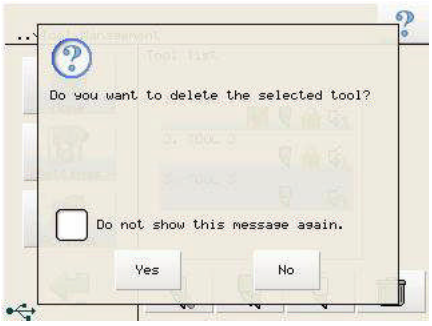
Deleting a tool

In case you want to delete a tool from the management library, proceed as follows:

Step 1: Click on the tool to select the tool you want to delete.

Step 2: Press the *Delete tool* button.

- A confirmation window is shown. Click Yes if you want to delete the tool.



- The tool is deleted from the list.

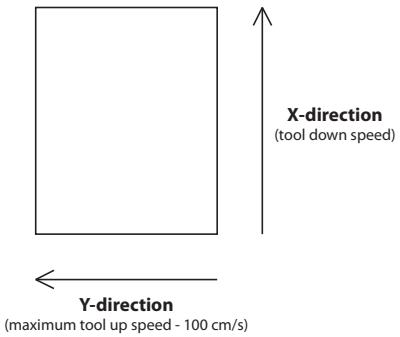
Note

- **A tool can't be deleted, if:**
  - It is a standard tool
  - It is no standard tool, but has been locked for deletion by the user
  - The tool is loaded
  - The tool is used as Cut Through tool

Up velocity

Set the cutting speed according to the application (cut through, contour cutting).

The speed can be set as well on the cutter panel as in the cut software. When the speed is set in the software, the panel speed is overruled when the function VS/ZF/AS is enabled (by default).



Note that there is also a throughcut speed. This speed can be set in the separate *Cut Through* menu.

4

Up height

This setting gives you the opportunity to set the tool height above the media during operation.

For example: The drag knife touches the uneven media during the up movements. Increase the tool up height to prevent these media collisions.

Press the following buttons in order to open the Up height window:

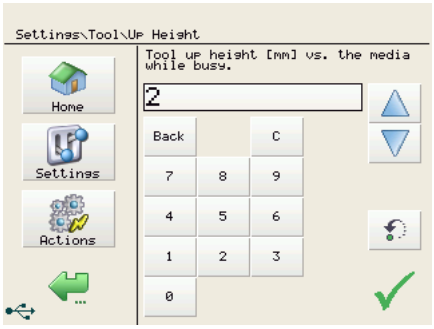
- *Settings*

- *Tool*

- *Next page*

- *Up height*

  - The Up height window opens.



  - Set the preferred height and confirm with ✓

Epos

Epos Alignment

This test will fine-tune the position of the cutting knife compared to the EPOS laser. This test can be done manually and automatically. It is recommended however, to let the Kona adjust the values automatically.

Note

- **It is advised to perform this test for each new knife.**
- **An EPOS calibration is always done with a drag knife. The machine will automatically check which tools are available and perform the necessary tool changes to do the calibration. Afterwards, tool changes are done to set the machine back in the same condition as before.**

Step 1: Install and set a knife.

Refer to Installing tools on page 38

Step 2: Install a dark (black) vinyl. Check with the EPOS readout function if it is dark enough as described in BC Read on page 125.

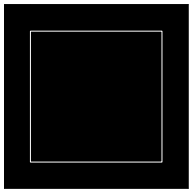
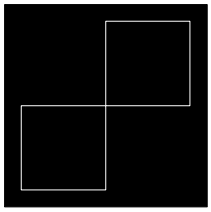
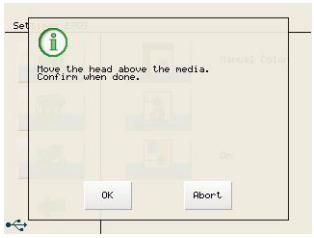
Step 3: Press the following buttons in order:

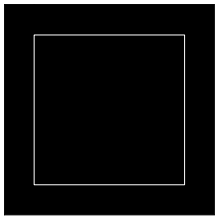
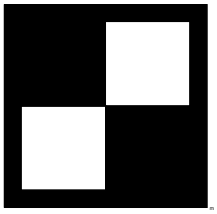
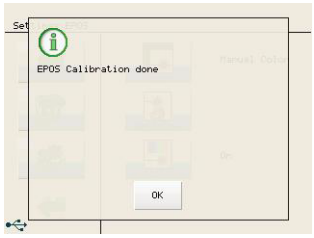
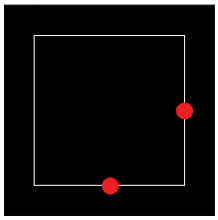
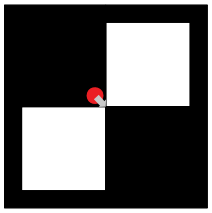
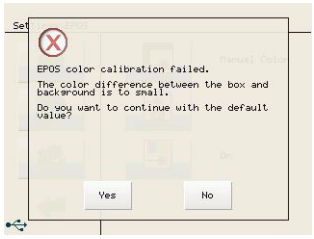
- *Settings*

- *Epos*

- *Epos Align*

- You now have 3 options

	Automatic (Recommended)	Manual Position	Manual color
Step 4:	Select automatic	Select manual position	Select Manual color
Step 5:	Press the start key ▶	Press the start key ▶	Press the start key ▶
Step 6:	Following pattern is cut: 	Following pattern is cut: 	Following screen is displayed:  ■ Move the head over the media and press *OK*.
Step 7:	The media is fed forward to present the test pattern	The media is fed forward to present the test pattern	Following screen is displayed:  ■ Pull the media manually forward until a bounding box is visible. Move the head a couple of times over the bounding box and press *OK*.

	Automatic (Recommended)	Manual Position	Manual color
Step 8:	Weed out the square and press *OK* 	Weed out the squares and press *OK* 	If the epos alignment is correctly executed, following screen is shown: 
Step 9:	The cutter automatically measures the bottom and right side of the box, to know the distance between the EPOS sensor and the knife tip. 	The EPOS laser activates and moves to the approximate centre of the cross. In case the laser is not positioned on the centre, guide it to the perfect centre of the two squares and confirm the position with OK. 	In case the alignment is not well executed, the Kona will show following warning:  ■ Perform the above steps again to become a proper calibration.
Step 10:	The EPOS calibration is finished.	The EPOS calibration is finished.	The EPOS calibration is finished.

4

Optimize

When calibrating the EPOS, the X and Y distance is measured between the pen and the laser. These values are used when contour cutting.

Normally, these values are correct, but in rare cases a shift could happen. To delete this shift, you can optimize the offset distances between the pen and the laser.

These distances are counted up with the calibrated values.

When performing a new EPOS calibration, the optimize values are being reset to 0.

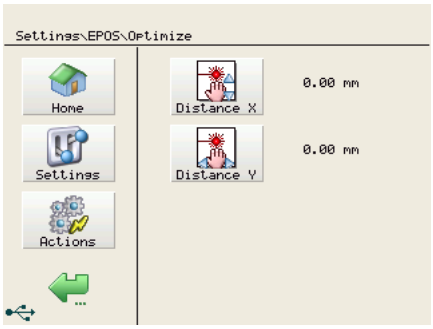
Perform an EPOS optimization as follows:

- *Settings*

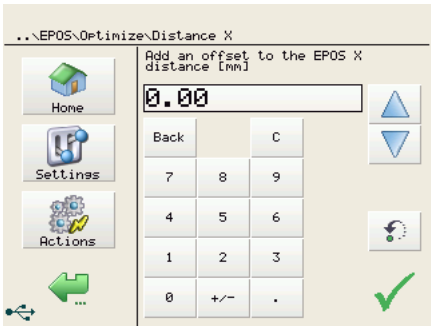
- *Epos*

- Optimize

- Press *Distance X* or *Distance Y* to adjust the value.



- Add an offset to the EPOS and click ✓



Color

When performing a manual EPOS color calibration, it is not longer necessary that the machine performs an automatic color detection. Therefore, you can switch this setting off.

Note

- **When performing a new automatic EPOS calibration, the setting is switched ON.**

Change the EPOS color setting as follows:

- *Settings*

- *Epos*

- Color

- Switch the setting to *ON* or *OFF* and confirm by pressing ✓

Load mode

It is necessary to pre-define the method of media measurement before lowering the pressure rolls. Follow the procedure below to set the media measurement method:

Step 1: Press the following buttons in order:

- *Settings*

- *Load Mode*

Step 2: Select the media measurement method and confirm with ✓

- With Front
- Without Front
- With Front Uneven Media
- Without Front Uneven Media

Refer to the table on the next page for more information.

Media measure method	Media measurement
With front 	When lowering the pressure rollers, the cutter determines the **left**, **right** and **front** side of the media. Next to this, the cutter feeds the media forward. ■ In case the rear sensor does not longer detect media, the cutter automatically knows sheet media is loaded. ■ In case the rear sensor remains covered, the media is fed forward the set value of the load length. **Refer to** Load length on page 98 The origin is defined from the front of the media.
Without front 	When lowering the pressure rollers, the cutter determines the **left** and **right** side of the media. Next to this, the cutter feeds the media forward. ■ In case the rear sensor does not longer detect media, the cutter automatically knows sheet media is loaded. ■ In case the rear sensor keeps covered, the media is fed forward the set value of the load length. **Refer to** Load length on page 98 The cutter will not feed the media back to the beginning of the media.
With front Uneven media 	In case the **front / backside** of the media is slightly **curled**, select this option. Compared to the setting "With Front" the cutter will feed the media forward, move the head over the media and determine the **left, right** and **front** side of the media. This way the media is kept flat. Next to this, the cutter feeds the media forward. ■ In case the rear sensor does not longer detect media, the cutter automatically knows sheet media is loaded. ■ In case the rear sensor keeps covered, the media is fed forward the set value of the load length. **Refer to** Load length on page 98 The origin is defined from the front of the media.
Without front Uneven media 	In case the **front / backside** of the media is slightly **curled**, select this option. Compared to the setting "Without Front" the cutter will feed the media forward, move the head over the media and determine the **left** and **right** side of the media. This way the media is kept flat. Next to this, the cutter feeds the media forward. ■ In case the rear sensor does not longer detect media, the cutter automatically knows sheet media is loaded. ■ In case the rear sensor keeps covered, the media is fed forward the set value of the load length. **Refer to** Load length on page 98 The cutter will not feed the media back to the beginning of the media.

Load length

This parameter is directly related to media load mode.

Refer to Load mode on page 96

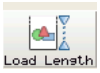
The Load length or shuffle length must be set before loading media. There are 3 reasons for using a Load Length:

- The length of media set for the Load length parameter is pulled off the roll, before starting the cutting job. This prevents pulling media off the roll when accelerating. High speed can only be properly used on condition that the media can move freely.
- Before the actual cutting starts the complete length of the media is shuffled back and forth through the cutter, ensuring the pressure rollers have a discrete path while the user has the time to verify if the vinyl transports well.
- Your Kona cutter is equipped with an auto sheet-off feature. If the autoshuffle is on, the Kona automatically cuts off media at the end of a cutting sequence. Following an automatic PAGE command or a manual PAGE command initiated via the control panel, the cutter shuffles through the pre-set load length of media, to ensure that there is enough media left for a possible replot. If there is not enough media left, the cutter stops before the end of the assigned media length. The cutter will not initiate the media again in between 2 contour cutting jobs.

To set the load length, proceed as follows.

- *Settings*

- *Load Length*



- Set the load length value and confirm with ✓

Sheetoff

The auto-sheet-off mechanism can easily be used to cut the front edge of a new roll of vinyl straight as well as to cut off a sheet of vinyl from a roll.

Note

- **Performing a sheet off action will reset the origin.**

Step 1: Press the following buttons in order:

- *Settings*

- *Sheetoff*

- *Mode*

Step 2: Choose between one of the following modes and confirm with ✓.

Sheet off mode	Description
Automatic	An automatic sheet-off is done when selecting sheet-off in the actions menu. **Refer to** Sheetoff on page 123
Manual	The media is fed away from the media platform to manually sheet-off the media using a snap-off blade.
Disabled	There is no sheet-off possible

Step 3: Click *Margin*.

- Set the feed distance the media is fed before sheeting-off and confirm the new value with ✓.

Step 4: Click *Velocity*.

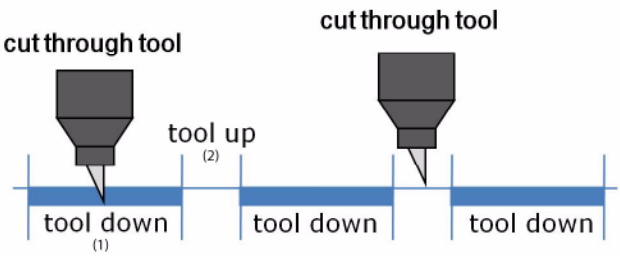
- Set the velocity of the sheet off operation and confirm the new value with ✓.

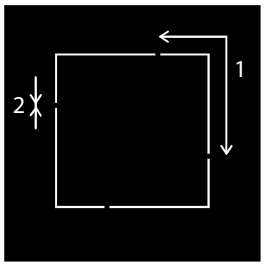
Note

- Be aware that larger media will begin to hang if the velocity is too low. This leads to torn media.

Cut through

When all vector paths of your contour alignment are completed, single sticker samples (basic shapes) are often to be isolated. Due to the intermittent or discontinued plotting of Mutoh's supporting cut through technique, an extra protection of sticker drop-outs is guaranteed by configuring your tool-up distance.





Refer to the Application Guide of the Kona to know how to initiate a cut through routine flawless.

It is however not easy to match an ideal tool configuration setup in which the media weakness suffers not radically from the multiple cut through samples accomplished. Therefore a perfect harmony between your tool down force and tool up distance needs to be synchronised.

Via this menu, you can set the desired cut through parameters.

Parameter	Description
Tool	Select which tool you want to use for the through cut procedure. Default this is tool 2. But you are able to select another tool.
Velocity	The speed of which the cut through routine is cut. *Default: 10 cm/s*
Force	The force on the tool during the cut through routine. *Default: 250 gram*
Test	Performs a small cutthrough test.
Tool Up Distance	The quantity of vinyl left uncut to hold the sticker fixed to the media. *Default: 0,1 cm*
Tool Down Distance	The distance of cutting through the vinyl. *Default: 10 cm*
Test	Performs a small cutthrough test.

4

Follow the procedure below to make the appropriate settings:

Step 1: Press the following buttons in order:

- *Settings*

- *Cut through*

- Click on the tool to select the tool you want to use

- Set the values for the *velocity* and *force*.

Step 2: Enter the desired values and confirm with ✓

Step 3: Press the *test* key to verify the quality of the through cutting settings.

Step 4: Set the values for the *tool up* and *tool down* distance.

- *Go to the next sub page*

- *Select Up Dist. and/or Down. Dist.*

Step 5: Enter the desired values and confirm with ✓

Step 6: Press the *test* key to verify the quality of the through cutting settings.

Step 7: Check if it is easy to push out the cut patterns. If not, try to increase the force and knife depth or to decrease the tool down distance.

Refer to Force on page 80 **and** Adjusting the knife depth on page 45

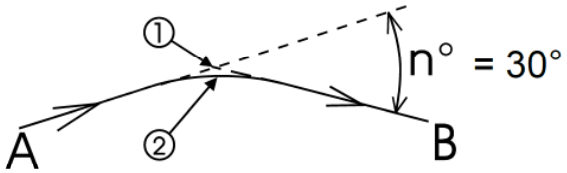
Step 8: Be sure to perform a sheet-off after the test because the pushed-out squares/circles will uncover the paper sensor which could lead to an error.

4.2.3 Settings 2/3

Smoothing

Smoothing can be *enabled* or *disabled*. Depending on your choice, cutting of blunt angles is dealt with differently by the cutter.

If the complementary angle between two consecutive vectors A & B is larger than the smoothing angle, the cutter will slow down and cut a sharp corner (1). If the angle is smaller, the cutter will maintain its speed and cut a rounded corner (2). The optimum smoothing angle is calculated internally. When smoothing is DISABLED all corners are cut sharply.



Enable or disable the smoothing as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *Next page*

- *Smoothing*

Step 2: Choose between *ON* (recommended) or *OFF* and confirm with ✓

Note

- **It is advised to enable the smooting feature.**

Resolution

Please note that some software packages use the "step per mm" terminology, in which case a program step of 0.025 mm corresponds with 40 steps per mm and a program step of 0.010 mm with 100 steps per mm.

Contour cutting supports only 0.010 mm program step.

Note

- **If the plot unit is not set correctly, all your cutting jobs are cut 2.5 times too large or too small.**

Set the resolution as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *1x next page*

- *Resolution*

Step 2: Choose between *0,010* and *0,025* and confirm with ✓

Job focus

A lot of advanced cutting settings are made in the background without any need of intervention by the end-user. Select by means of the table below the correct job focus.

Step 1: Press the following buttons in order:

- *Settings*

- *Next page*

- *Job Focus*

Step 2: Choose between accuracy and speed and confirm with ✓

Job Focus	Description
Accuracy	Give in some speed, but gain quality.
Speed	Give in some quality, but gain speed.

Auto shuffle

After an automatic sheet-off, it is possible to let the cutter shuffle the set load length or to hold until further action is required.

Refer to Load length on page 98

Enable or disable this function as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *Next page*

- *AutoShuffle*

Step 2: Choose between *ON* and *OFF* and confirm with ✓

Origin

Note

- **Be aware that this is the standard Origin setting. There is also the possibility to customize the origin. For more information concerning the customized origin refer to** Origin on page 113

Set the cutting starting position (origin) as follows:

Step 1: Please make sure to load media. If not, the positioning calculation is based on previously installed media.

Step 2: Press the following buttons in order:

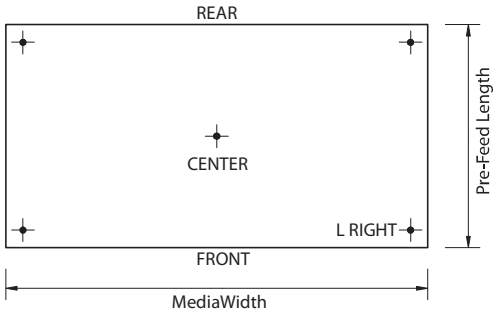
- *Settings*

- *Next page*

- *Origin*

Step 3: Select the origin position and confirm with ✓.

- Center
- **Lower right** (default)



Note

- **The tip of the knife will stand directly above the selected origin.**

Note

- **The point of view of the above picture is when standing in front of the cutter.**

Page Mode

The page mode determines the cutter's reaction to a PAGE command sent by the cutting software. The PAGE command is used to relocate the origin after a job is finished and can take control remotely of the cutter's automatic sheet-off feature. Sheeting-off automatically, without user intervention.

A page-command looks like this: "PG;" or "PGN;" with "n" a number in millimetres.

If the PAGE command "PG;" is sent, the cutter automatically sheets of regardless of the Page mode, minimizing the loss of vinyl.

If the PAGE command "PGN;" is sent, the number mentioned after the PG command is interpreted differently, depending on the page mode you have chosen:

Page Mode 0

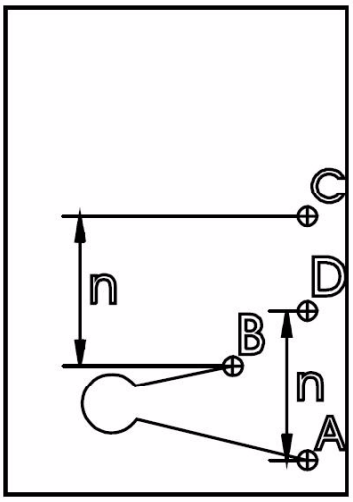
The number after the page command is ignored. The media is cut 5 mm (0.2") after the latest down-vector. The new cutting limit is located 0.5 (0.2") from the lower media border.

Page Mode 1

The new origin is located "n" millimetres beyond the last down-vector that was sent.

Page Mode 2

The new origin is located "n" millimetres beyond the previous origin position.



"PGN" is sent (n is a number in mm).

A: Original origin

B: End point last vector

C: New origin with Page Mode 1

D: New origin with Page Mode 2

4.2.4 Settings 3/3

Protocol

This menu incorporates Emulation and VS/ZF/AS.

Step 1: To set these parameters press the following buttons in order:

Emulation

- *Settings*

- *2x next page*

- *Protocol*

- *Emulation*

VS/ZF/AS

- *VS/ZF/AS*

  - Choose between accept and ignore and confirm with ✓

Several cutting software packages enable the user to send speed, force and acceleration commands to the cutter. The cutter can be set up to *accept* or *ignore* these commands.

Note

- **When VS and ZF commands are sent and accepted, they override the speed, force and acceleration settings the user has set from the cutter operation panel. When the VS and ZF commands are ignored, the cutter always uses the settings, which are set-up from the cutter operation panel.**

Language

Sets the desired language.

Step 1: Press the following buttons in order:

- *Settings*

- *2x next page*

- *Language*

Step 2: Choose between the different available languages and confirm with ✓

Diagnostics

This section is intended for service technicians only!

Note

- **In case of entering the diagnostics mode and changing settings, the cutter may become disordered if you are not sure what you are doing.**
- **It is advised to make a backup of all parameters. Refer to the CutServer User's Guide for more information on this topic.**

Screen

All settings and features regarding the touch screen can be made here.

Step 1: Press the following buttons in order:

- *Settings*

- *2x Next page*

- *Screen*

Step 2: Select the desired parameter.

- **Beep:** in case you want a beeping sound when pressing a button, set to ON.
- **Contrast:** change the value to change the contrast of the LCD screen. After changing it, confirm with ✓
- **Brightness** change the value to change the brightness of the LCD screen. After changing it, confirm with ✓
- **Animation**:
  - Wait time: Set the time the Kona has to wait before starting the animation. After changing it, confirm with ✓
  - Play: Select this button to start an example of the animation.

Information

As well for yourself as for the communication with the CutServer, it is handy to know which firmware, serial number, revision... the machine has.

Open the information screen as follows:

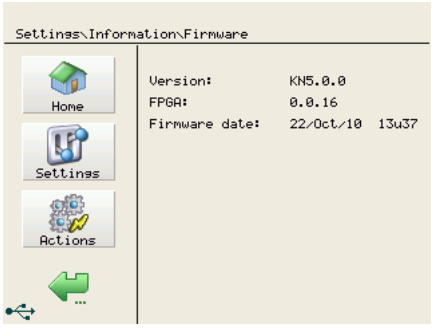
Step 1: Press the following buttons in order:

- *Settings*

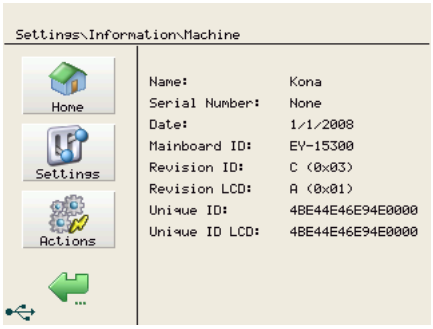
- *2x Next page*

- *Information*

- Click *Firmware* to see the firmware version. 



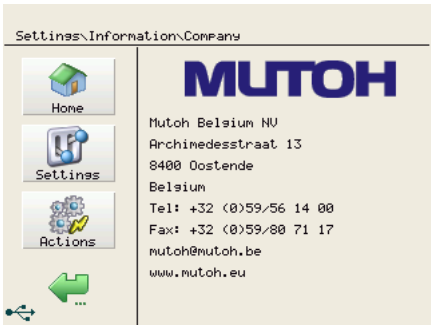
- Click *Machine* to see the serial number and other ID settings. 



Note

- **The Serial number, unique ID and Unique ID LCD are machine depended.**

- Click *Company* to see the company address. 



User

It is possible to reset the user settings of the Kona. We do advise to make a backup of all settings before performing this action.

For more information on how to make a backup, refer to the User's Guide of the CutServer.

Open the User window as follows:

Step 1: Press the following buttons in order:

- *Settings*

- *1x previous page*

- *User*

A new window appears asking if you are sure you want to reset the user settings. Click *NO* if you do not want to restore the user settings.

In case you chose *yes*, the machine will restart and all User settings are reset.

4.2.5 Actions 1/2

Jogging

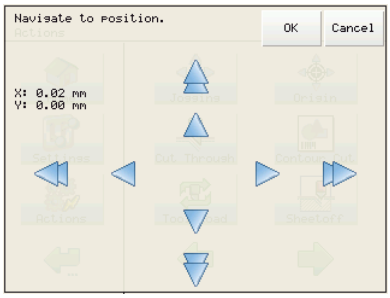
Used to move the head or media forward and backward. This does not change the origin.

Step 1: Press the following buttons in order:

- *Actions*

- *Jogging*

Step 2: The cutter displays following screen:



Item	Information
	Moves the head to the left
	Moves the head to the right
	Feeds the media forwards
	Feeds the media backwards
	Position of the knife top. ■ The X coordinate is the difference between the front edge of the media and the front sensor. ■ The Y coordinate is measured from the right side of the cutter.
	Results in the head and media returning to its previous position.
	Pressing *OK* results in a confirmation of the position.

Note

- **It is possible to move both the head as media at the same time when touching the jog screen in diagonal direction.**

Step 3: Navigate the head over the media using the arrows. The single arrows let the head move slowly and more accurate. The double arrows will move the head faster.

Origin

Note

- **Be aware that this is the customized Origin setting. There is also a standard origin. For more information concerning the standard origin refer to** Origin on page 105

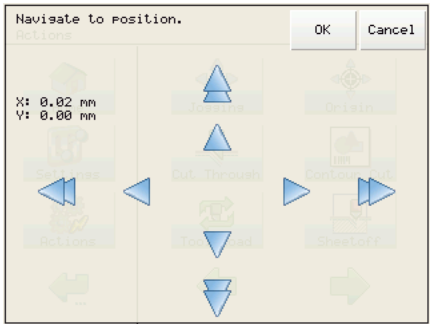
Follow the procedure below to change/control the origin:

Step 1: Press the following buttons in order:

- *Actions*

- *Origin*

Step 2: The following screen is displayed:



Item	Information
	Move the head to the left
	Move the head to the right
	Feed the media forwards
	Feed the media backwards
	Position of the knife tip.
	Pressing *Cancel* after moving the head or the media results in the head and media returning to its previous position.
	Press *OK* to save the new origin.

Note

- **When a sheet-off action is performed the origin setting is reset.**

Note

- **It is possible to move both the head as media at the same time when touching the jog screen in diagonal direction.**

Step 3: Navigate the head and/or media using the arrows until you reached the desired origin.

Cut Through - Trim Poster

After printing posters, it is possible to use the Kona to trim the posters. Do this as follows:

Step 1: Load the poster in the cutter.

Step 2: Install a knife at through cut depth or select the correct tool in the tool manager.

Refer to Cut through depth on page 44

Refer to Tool on page 77

Step 3: Make your personal settings regarding the cut through feature.

- Tool
- Velocity
- Force
- Tool up distance
- Tool down distance

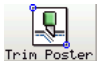
Refer to Cut through on page 100 **for all details on how to change the parameters.**

Step 4: Press the following buttons in order:

- *Actions*

- *Cut Through*

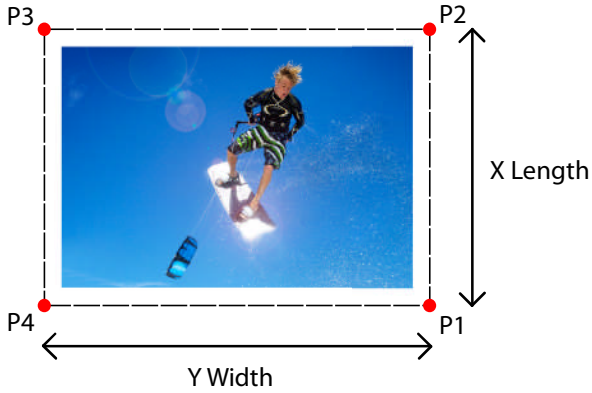
- *Trim poster*



Step 5: Set the approximate length and width of the poster.

Step 6: Press *play*.

Step 7: Move the penhead, using the jog keys, until the knife point is positioned above P1 and press *OK* when done.



Step 8: The cutter will automatically feed the media the length set previously. Use the jog keys to set the second corner more precisely if necessary.

Step 9: Do this until you have selected all 4 corners in correct order (P1 – P2 – P3 – P4).

Step 10: Insert the user selected tool when asked and press *OK* when done.

Note

- **This message is only displayed when the swap alert setting is set to ON. Otherwise, the poster is cut through without this notification.**

  Refer to Swap alert on page 85

Step 11: The poster is trimmed according to the routine shown below:

Step 12: After finalizing the poster trimming, insert the standard tool again and press OK.

Note

- **This message is only displayed when the swap alert setting is set to ON.**

  Refer to Swap alert on page 85

Step 13: Gently push out the poster.

Contour cut

Refer to the Kona **Application Guide for detailed information about contour cutting, and how to set your cutter and software.**

Refer to the chapter Contour cutting on page 133 **to know which alignment method to choose and the bounding box specifications.**

Automatic

When performing a single or multi-frame contour cut job, start the job via the *Go* button on Mutoh's CutServer. It is also possible to launch the job directly from the cutter itself, only on the condition that the cutter is connected with Mutoh's CutServer. In fact, this function replaces the *Go* button.

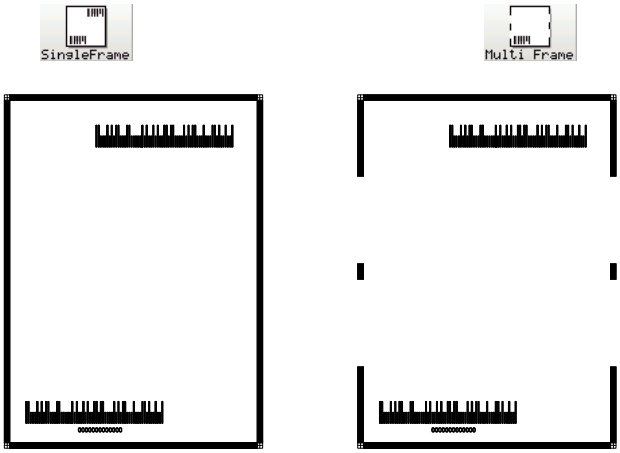
Start a *single* or *multi-frame* contour cutting job as follows:

Step 1: Press the following buttons in order:

- *Actions*

- *Contour Cut*

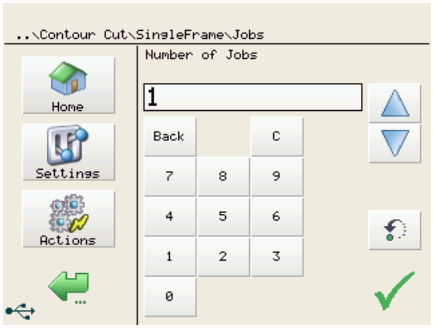
Step 2: Select whether the job loaded is a single or multi-frame contour cut.



Step 3: Set the number of jobs to perform

- Press *Jobs*

- Fill in the number of jobs.



Step 4: Press ✓

Step 5: Press the *Sheet off between* button.

- Decide if you want to perform a sheet off action between two jobs or not.

Step 6: Press the *Sheet off afterwards* button.

- Decide if you want to perform a sheet off action after the jobs or not.

Step 7: Press the start key.

Step 8: The cutter will start scanning the bounding box and reading out the barcode.

Step 9: As from the moment the barcode is recognized, the corresponding job is launched from the Mutoh CutServer.

4

Manual

When you want to start a contour cutting job without using the automatic alignment option, the *manual* mode needs to be chosen. This could be useful when you have loaded very reflective media which cannot be detected by the cutter.

Start a *manual* contour cutting job as follows:

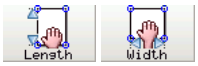
Step 1: Press the following buttons in order:

- *Actions*

- *Contour Cut*

- *Manual*

Step 2: Set the exact length and width of the bounding box.

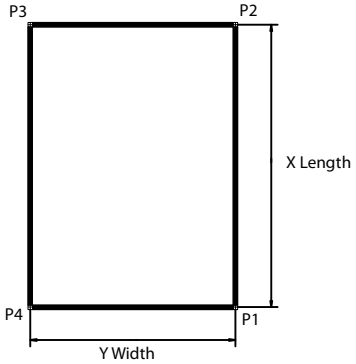


Step 3: Set the roll direction.

- Non-reverse: When standing in front of the cutter, the data sent should not be rotated.
- Reverse: When standing in front of the cutter, the data sent should be rotated.

Step 4: Press the start key.

Step 5: Move the penhead using the jog keys until the knife point is positioned above P1 and press OK when done. Then select P2 - P3 - P4.



Step 6: The knife will pause near point P1

Step 7: Send the relative (NOT absolute) plot data to the cutter to start the job.

BC Read

BC Read allows you to read out the bar code (if present) of the file you would like to cut.

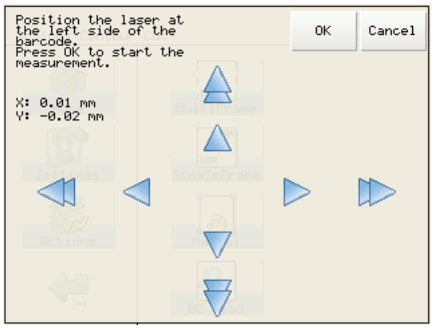
Step 1: Press the following buttons in order:

- *Actions*

- *Contour Cut*

- BC read

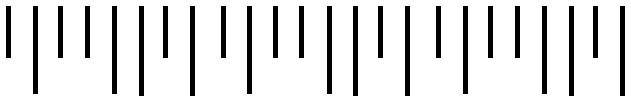
  - The Kona shows following message



  - Position the laser at the left side of the bar code and press OK.
    - The Kona will scan the bar code and display one of these two messages.

    - Not mirrored means the cut job is inserted normally.
      The bar code looks as follows:

- Mirrored means the cut job is inserted upside down.
  The bar code looks as follows:



Step 2: In case the bar code is not read out properly, following message appears.

- Press *OK* and retry.

Tool load

Perform a tool change to one of the tools in the tool list.

Note

- **Be aware that media needs to be loaded to be able to perform a tool load.**

Select the tool by its name in the selection box.

The action is the same as sending a SPx; command to the machine, where the x in the command is the tool number. Ex. If TOOL 1 has tool number 1, then sent SP1;

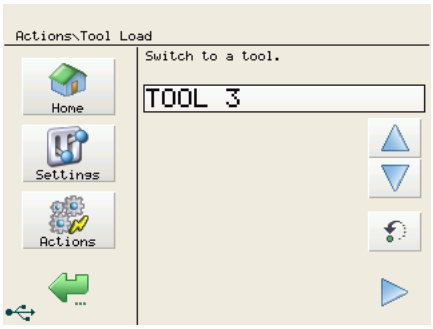
According the Swap Alert setting or the differences between the current and new tool, the user can be notified to replace the tool.

Step 1: Press the following buttons in order:

- *Actions*

- *Tool load*

- Click on the tool to select the tool to which you want to switch



- Press *play*

4

Sheetoff

Via this menu you can sheet-off the media. Perform a sheet-off as follows:

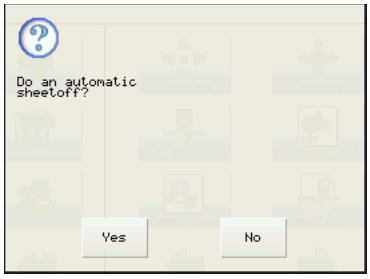
Step 1: Press the following buttons in order:

- *Actions*

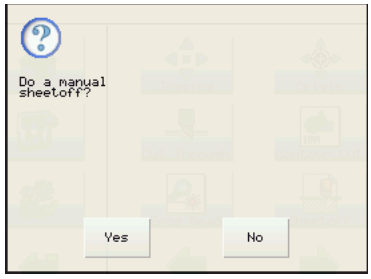
- *Sheet off*

Step 2: Depending on the settings made in the sheet-off parameter menu, one of the following screens is displayed.

Refer to Sheetoff on page 99



- The cutter automatically performs a sheet off operation.



- The cutter feeds the media forward so you can cut it off with a knife.

- No sheet off operations are being performed.

Step 3: Press *Yes* to proceed the sheet-off routine.

4.2.6 Actions 2/2

Copies

In case multiple outputs of a specific design are needed, use the copies function. This function will replot the last set of data, which was sent to the cutting plotter. That is, all data that was sent since the last INITIALISATION command ("IN").

Note

- **Be aware that you need to set the number of copies before starting any cut operations.**

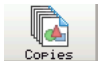
Set the number of copies as follows:

Step 1: Press the following buttons in order:

- *Actions*

- *next page*

- *Copies*



Step 2: Set the number of copies and confirm with ✓.

EPOS read

To be able to perform a contour job, the EPOS sensor needs to see the difference between the media and the printed bounding box. When loading a media and the measurement of the bounding box fails, it is interesting to perform the EPOS read test. Via this you can see if the sensor is able to detect a contrast between the media and bounding box.

Perform the test as follows:

Step 1: Press the following buttons in order:

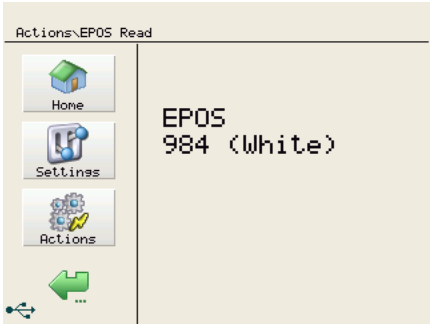
- *Actions*

- *next page*

- *EPOS read*

Step 2: The EPOS sensor is activated.

Step 3: Move the media away under the sensor and check if the read value changes from white (media) to colour (bounding box).



- White is approximately 1000
- Black is < 400

Step 4: If this is not the case, it is impossible to use the automatic alignment method and you should switch to the manual alignment mode.

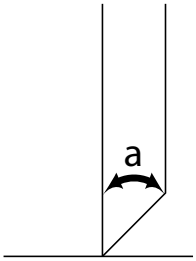
Refer to Contour cut on page 117

Chapter 5 Finetuning your cutter

In order to help you to obtain perfect quality our engineers have developed a step-by-step method for the beginning user. Once you have more experience with your cutter, you are able to fine-tune your cutter in a trice.

5.1 Knife types

There are several knife types available, each of them meant for specific cutting media.

	Cutting blade 1 Standard type	Cutting blade 2 Used for thick media e.g. Sandblast	Cutting blade 3 Used for thin media e.g. Film
Top angle (a) 	45° (red cap)	30° (yellow cap)	60° (blue cap)
Typical offset	0.50 mm	0.50 mm	0.50 mm
Default speed	60 cm/s (20 inch/s)	60 cm/s (20 inch/s)	60 cm/s (20 inch/s)
Default force			
■ **Contour cutting**	100 g	100 g	100 g
■ **Through cutting**	250 g	250 g	250 g

5.2 Kona calibration

5.2.1 Knife settings

There are 3 factors that have to be taken into account when setting up your cutter to execute a demanding cutting job:

- The knife depth for as well kiss cutting, contour cutting as through cutting.

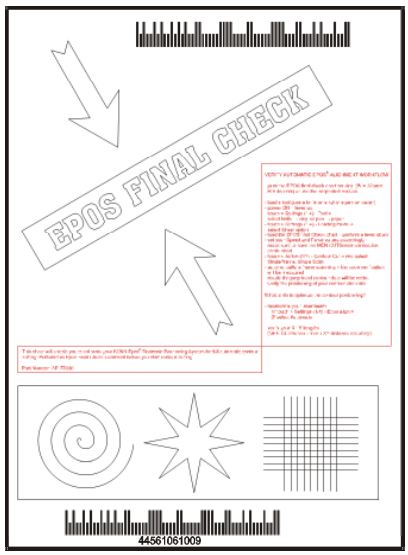
  Refer to Setting the correct knife depth on page 43 **to know how to set and test this parameter.**

- The cutting pressure for as well kiss cutting, contour cutting as through cutting

  Refer to Force on page 80 **to know how to set and test this parameter.**

- The offset of the knife

  Refer to Offset on page 82 **to know how to set and test this parameter.**



5.2.2 EPOS test cuts

To be able to contour cut, an Epos® feature has been incorporated. This feature will search for the reference box and measure the position of the design(s). When you establish some miscalculations during contour cutting, it is recommended to perform the test cuts described below. After these test, everything should be all right. If not, please contact an authorized Mutoh technician.

EPOS alignment verification

For this routine, there is need of the EPOS test sheet and Mutoh CutServer. As well the source file of this sheet as the installation program of the Mutoh CutServer can be found on the getting started CD of the Kona. This sheet will enable you to calibrate your Kona Epos® Electronic Positioning System for full automatic contour cutting. Verify the EPOS alignment as follows:

Step 1: Print the test sheet on vinyl observing the original size of the sheet (scale of 100%)

Step 2: Start the Mutoh CutServer and make connection with the Kona.

Step 3: Go to the contour cutting menu and select single frame or use the *Go* button of the CutServer.

Refer to Contour cut on page 117

Step 4: Start the contour cutting routine by pressing the play button.

Step 5: The cutter will go through the following routine

- Scan the frame.
- Scan the barcode.
- Cut the contour data.

Step 6: Check the positioning.

- In case you want to optimise the contour positioning
  - EPOS alignment test on page 130
  - XY-distance accuracy on page 131

EPOS alignment test

This test will fine-tune the position of the cutting knife compared to the EPOS laser. This test can be done manually and automatically. It is recommended however, to let the Kona adjust the values automatically.

Refer to Epos on page 92 **to know how to perform the test.**

EPOS readout

To be able to perform a contour job, the EPOS sensor needs to see the difference between the media and the printed bounding box. When you have loaded a media and the measurement of the bounding box fails, it is interesting to perform the EPOS read test. Via this way you can see if the sensor is able to detect a contrast between the media and bounding box.

Refer to EPOS read on page 125

5.2.3 XY-distance accuracy

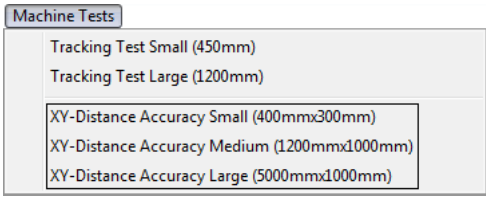
The *XY - Distance Accuracy* tests are developed to check the actual X-Y cutting distance with the sent vector data.

Please follow the procedure below to make the test:

Step 1: Launch Mutoh's CutServer.

Step 2: Be sure that the cutter is connected with the Mutoh CutServer.

Step 3: Select which test to perform.



Step 4: Select the appropriate connection and double-click.

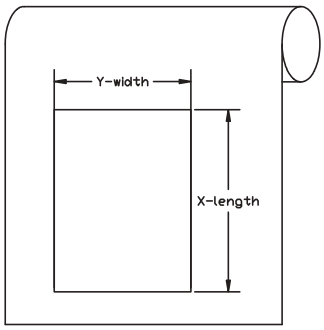
Step 5: Load a roll or sheet with at least the measurements indicated in the dropdown menu.

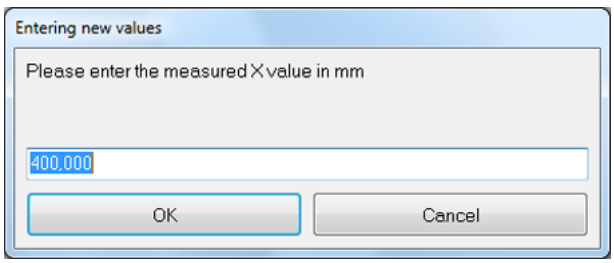
Step 6: Load a knife.

Step 7: A box is cut.

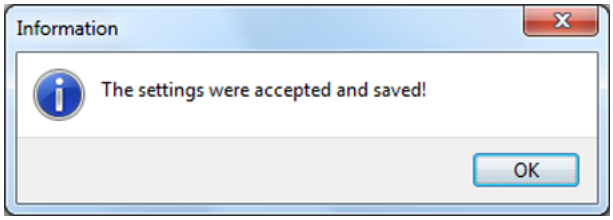
Step 8: Peel out the box.

Step 9: Measure the X length and Y width and enter them. **Be sure to enter the values in mm!**





Step 10: If entering the correct values, the following message will appear and the test is done.

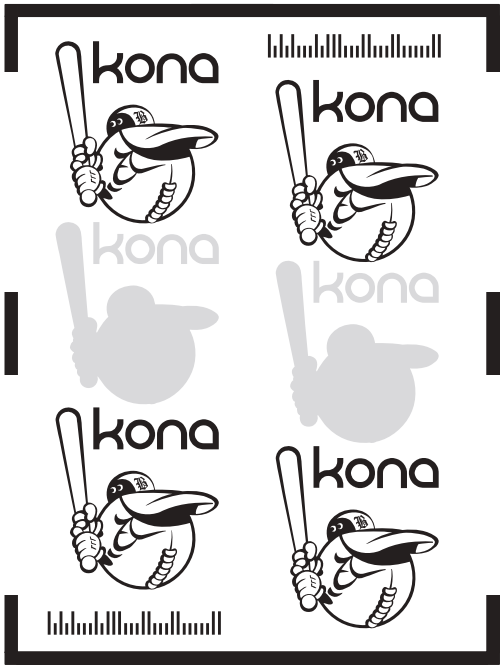


Chapter 6 Contour cutting

6.1 Introduction

Contour cutting is a very popular feature of the Mutoh cutters.

This feature is made to cut pre-printed signs on vinyl for sticker production as shown on this picture:



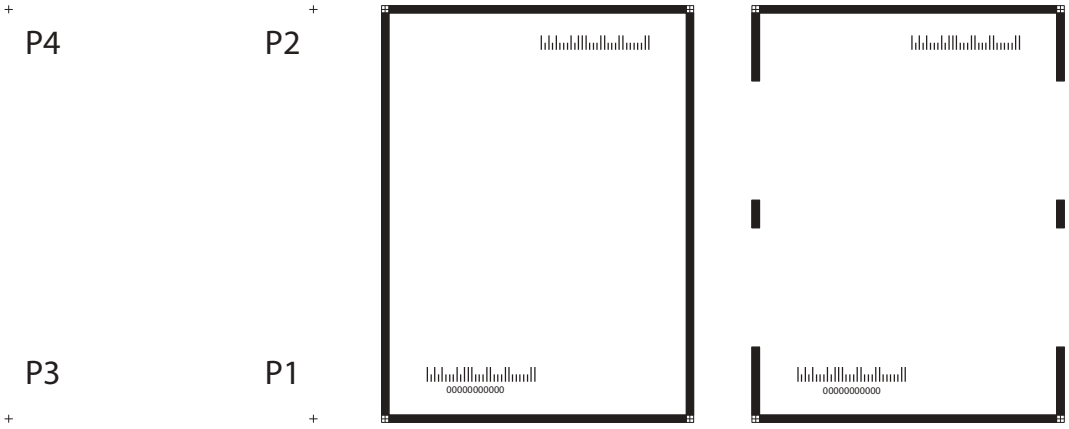
Please read this chapter carefully.

6.2 Different alignment methods

There are some different approaches to cut your signs which also implicate a different alignment method.

N°	Description	Info
1	Manual	Manual alignment method ■ Manually set the size of the paper and 4 corners of the box
2	Single Frame	Automatic alignment with barcode and single frame ■ Automatic measurement of the reference box and barcode ■ Only 1 reference box
3	Multi Frame	Automatic alignment with barcode and multi-segment frame. ■ Automatic measurement of the reference box and barcode ■ Multiple segments in 1 reference box (for long files to guarantee precision).

Manual alignment **Single frame alignment** **Multi frame alignment**



6.3 Which alignment method to use?

6.3.1 Manual alignment method

The Mutoh Manual Alignment Method is the non-automatic method.

Its advantage is that the cropmark system is very small (for small sized jobs), and that this method can be used in case of vinyl that do not reflect the EPOS laser light (meaning, the laser would not be capable of measuring the cropmarks automatically).

Refer to EPOS read on page 125

The user has to use the jog keys on the keyboard to measure each cross manually before contourcutting can start.

Refer to the Kona application guide for all details about Mutoh's CutServer and the Print&Cut workflow.

6.3.2 Single frame alignment method

The Mutoh Single frame alignment method is a fully-automated alignment system, with a barcode printed on the sign. This method should be used in combination with Mutoh's CutServer.

This method can be used in case you are creating multiple different contour signs. It allows you to make all your prints at once (overnight printing for example), and then load the roll with images in the Kona.

If each sign on the roll has a barcode and if all plot files are in the Mutoh CutServer, set the amount of jobs and click on *Go* in the Mutoh CutServer and every sign on the roll will be cut, without the need for user intervention (make sure you've enabled auto-sheet-off in EasySIGN for each contour-sign).

The reason for the two barcodes is to make it possible for the Kona to auto-detect if the image is loaded upside-down or correctly. There is no need for you to search the plot file for each image; the Kona and the Mutoh CutServer will do this fully-automatically, until the complete roll with signs is finished.

We do not recommend this method over 2 m job length, although there is no real limit to the length that can be used.

Refer to the Kona application guide for all details about Mutoh's CutServer and the Print&Cut workflow.

6.3.3 Multi frame alignment method

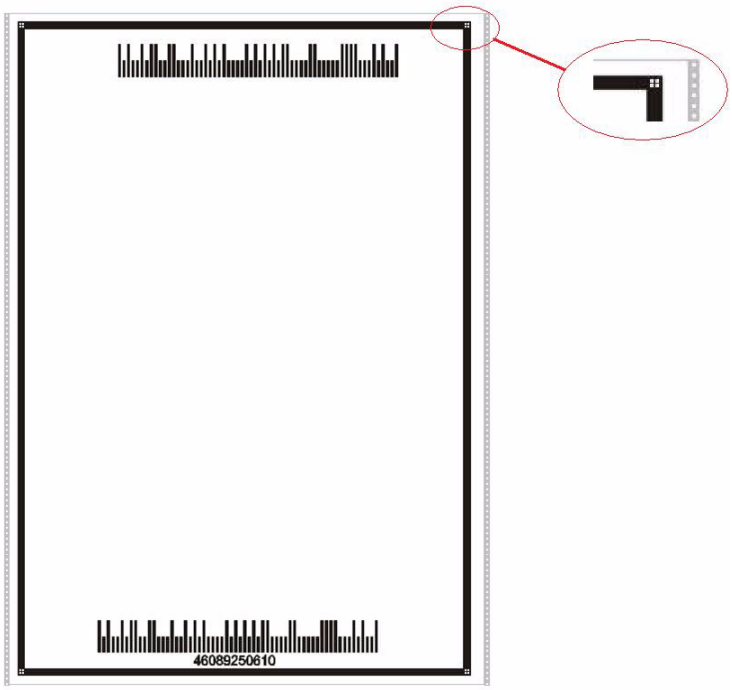
The Mutoh Multi frame alignment method offers all advantages of the previous one but it will split the image in multiple segments. This is to enhance precision over long length. This method should be used in combination with Mutoh's CutServer.

With this method, it is possible to make signs of 10m or longer, and the Kona will measure segment per segment, and cut segment per segment. This method gives you more accuracy than the previous method. We do not recommend this method for signs smaller than 1,5m.

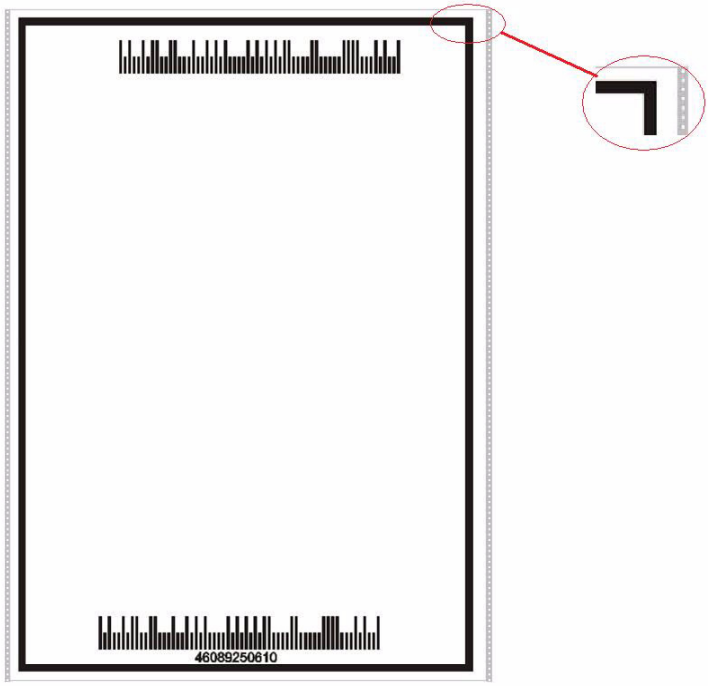
Refer to the Kona application guide for all details about Mutoh's CutServer and the Print&Cut workflow.

Note

- **When working with EasySign, check the corners to see if you are using a Single frame or multi frame alignment box.**
  - Single Frame alignment box



  - Multi Frame alignment box



6.4 Bounding box details

6.4.1 Hints, tips and recommendations

To use the automatic alignment procedure, the pre-printed sheet contains a reference box around the design to be cut.

- Note that the reference box around your design(s) is printed. Before contour-cutting the EPOS technology will search for the reference box and measure the position of the design(s).
- Be sure that there is 5 mm of white space between the image and the reference box.
- Be sure that the reference box has a dark colour (recommended: black) in order to have enough contrast with the vinyl.
- The minimum thickness of the bounding box is 3 mm. However, when printing the print&cut file on an Osprey or Toucan, it is recommended to raise this value to at least 5 mm.
- Make sure that the reference box fits within the margins of the maximum cutting width of your cutting plotter.
- **Be sure that the media has been sheeted off straight. If not, the cutter will have problems measuring the media.**

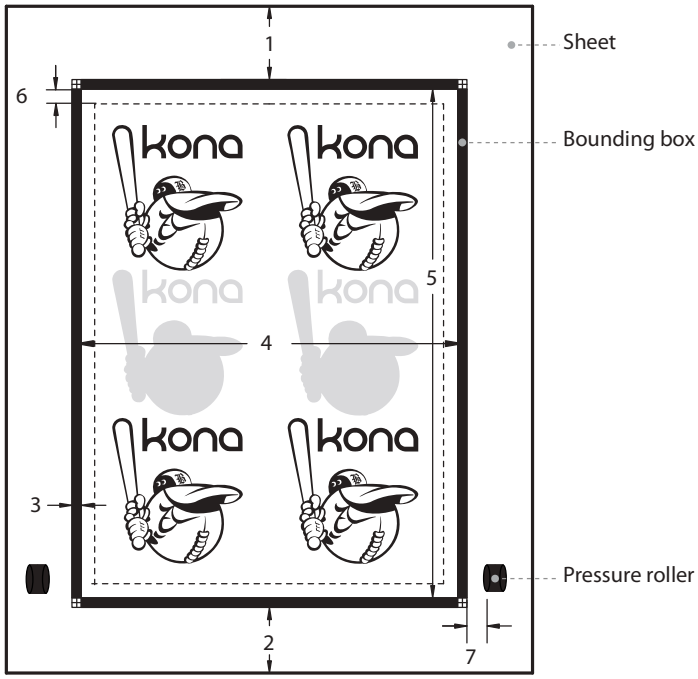
Note

- **The position of the design with the reference box compared to the page edges is defined in the print-software.**
- **The creation of an image should be done in a graphics application software (e.g. CorelDraw, Adobe Illustrator, Adobe Photoshop or Macromedia Freehand) or in origin software with design functionalities (EasySIGN Power Pack Pro Mutoh Edition or Scanvec Amiable PhotoPRINT DX Mutoh Edition)**
- **Do not forget to create the cutting line around your image. The default cutting line is a "magenta hairline" or "spotcolor" with <CutContour> swatch name (in the CMYK pallet).**
  - Thickness line = hairline (or 0.25)
  - Colour = 100% magenta
- **For more details, please refer to the Kona Application Guide.**

6.4.2 Bounding box specifications

For automatic alignment Type 1 (AL3)

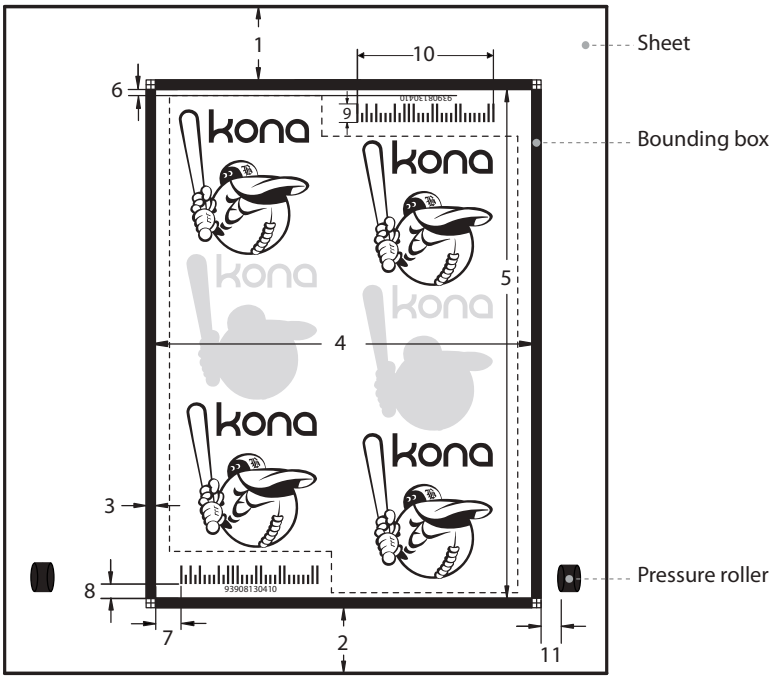
The frame bounding box printed or generated around the contour cut data should respect the guidelines below.



N°	Description	Minimum	Maximum
1	White edge at the rear side ■ Sheet ■ Between 2 boxes Add extra space (50mm) when working with curled media	 ■ 75 mm ■ 50 mm	 ■ 250 mm ■ 250 mm
2	White edge at the front side Add extra space (50mm) when working with curled media	20 mm	300 mm
3	Reference box thickness	3 mm	20 mm
4	Reference box width	250 mm	-
5	Reference box height	250 mm	10 m
6	Margin between image and bounding box	6 mm	-
7	Distance between pressure roller and bounding box	1 mm	-

For automatic alignment Type 2(AL4)

The frame bounding box printed or generated around the contour cut data should respect the guidelines below.



N°	Description	Minimum	Maximum
1	White edge at the rear side ■ Sheet ■ Between 2 boxes Add extra space (50 mm) when working with curled media	■ 75 mm ■ 50 mm	■ 250 mm ■ 250 mm
2	White edge at the front side Add extra space (50 mm) when working with curled media	20 mm	300 mm
3	Reference box thickness	3 mm	20 mm
4	Reference box width	250 mm	-
5	Reference box height	250 mm	10 m
6	Vertical distance between image (or bottom part of your ID number) and bounding box edge	2 mm	6 mm
7	Horizontal distance between bottom part of your bar code and bounding box edge	40 mm	100 mm
8	Vertical distance between bottom part of your bar code and bounding box edge	6 mm	12 mm

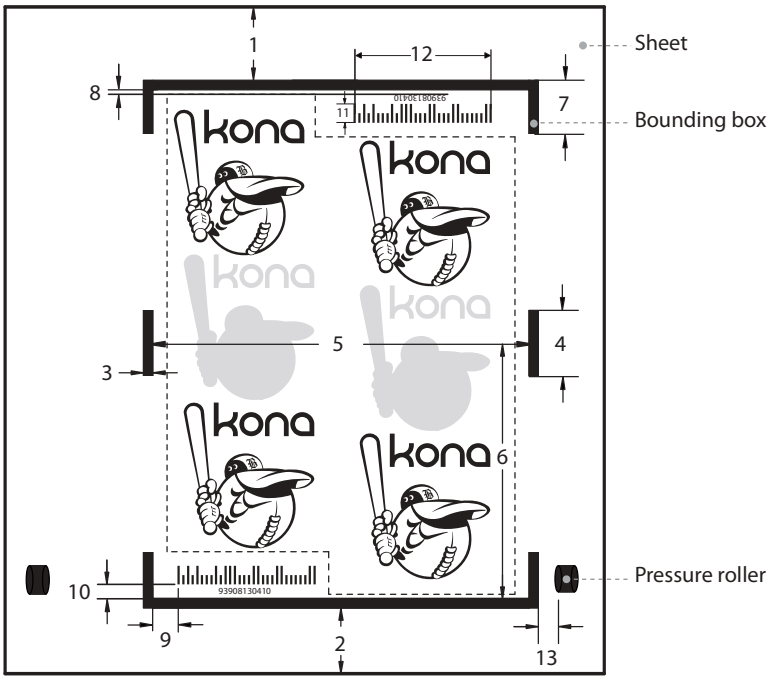
N°	Description	Minimum	Maximum
9	Bar code height	20 mm	20 mm
10	Bar code width	246 mm	-
11	Distance between pressure roller and bounding box	1 mm	-

Note

- **Upper and lower postnet barcodes do have an identical margin setup**
- **Make sure to respect the minimum margin setup (6) when adding your postnet ID number too**

For automatic alignment Type 3(AL5 / AL6)

The frame bounding box printed or generated around the contour cut data should respect the guidelines below.



N°	Description	Minimum	Maximum
1	White edge at the rear side ■ Sheet ■ Between 2 boxes Add extra space (50mm) when working with curled media	 ■ 75 mm ■ 50 mm	 ■ 250 mm ■ 250 mm
2	White edge at the front side Add extra space (50mm) when working with curled media	20 mm	300 mm
3	Reference box thickness	3 mm	20 mm
4	In between marker length	10 mm	60 mm
5	Reference box width	250 mm	-
6	Reference box height	250 mm	10 m
7	Start / stop bounding box height	125 mm	125 mm
8	Vertical distance between image (or bottom part of your ID number) and bounding box edge	2 mm	6 mm
9	Horizontal distance between bottom part of your bar code and bounding box edge	6 mm	12 mm
10	Vertical distance between bottom part of your bar code and bounding box edge	40 mm	100 mm

N°	Description	Minimum	Maximum
11	Bar code height	20 mm	20 mm
12	Bar code width	246 mm	-
13	Distance between pressure roller and bounding box	1 mm	-

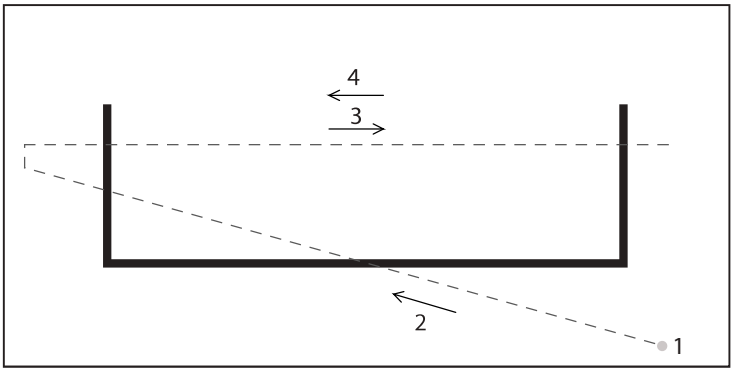
Note

- **Upper and lower postnet barcodes do have an identical margin setup**
- **Make sure to respect the minimum margin setup (8) when adding your postnet ID number too**

6.5 Scanning routing of bounding box

The bounding box is measured by the Epos sensor during a fast scan routine. It is interesting to know the principle behind this innovative scanning method.

The scanning routine will go through the following steps:



1 The laser is activated to detect the background colour. This value is used to recognize the difference between background and box during the scanning procedure.

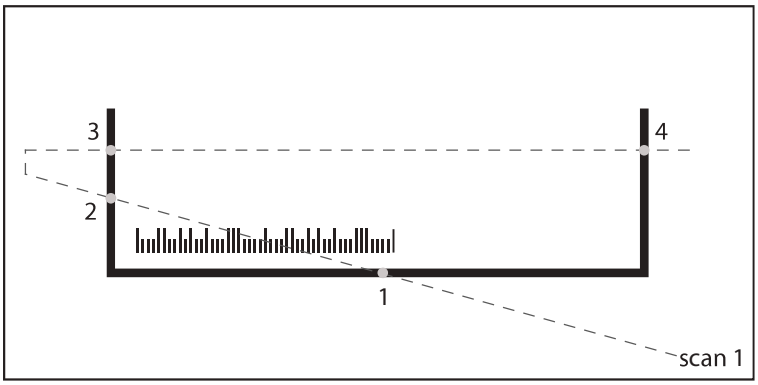
2 A diagonal scan is executed at the set cutting speed in the firmware (user controlled)

3 A horizontal scan is executed at maximum speed

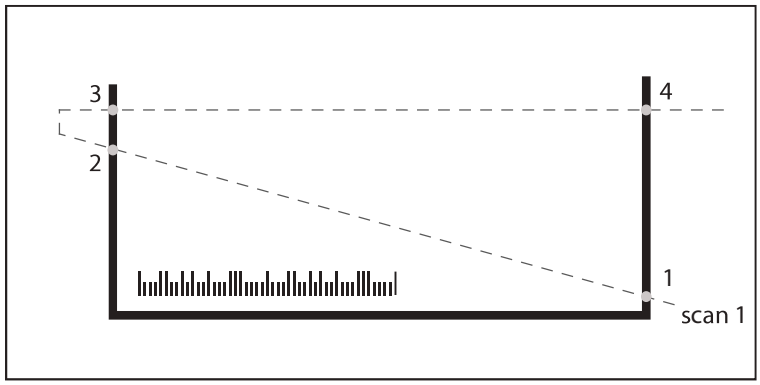
4 The head goes back over the scanned path to verify

As from the moment the scan cycle detects 4 points, the position of the barcode is known (situation 1 and 2). When there are less than 4 points detected, an intelligent feed of media will be done and the same type of scan will be performed a second time (situation 3).

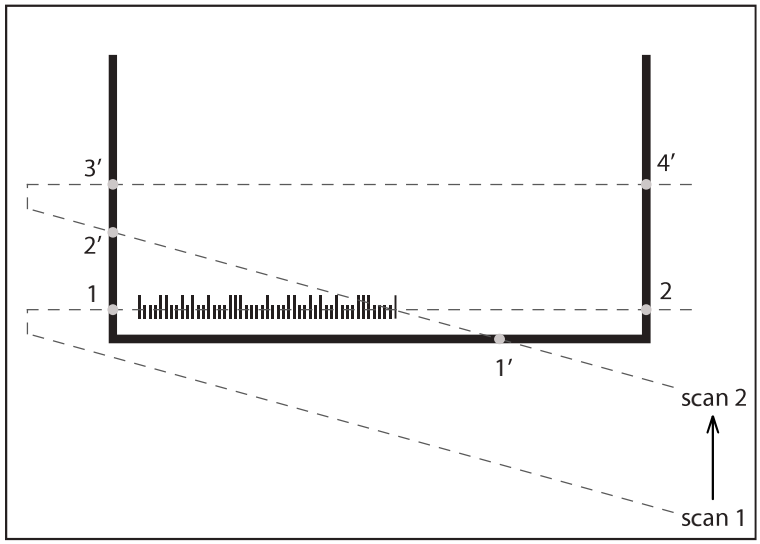
Situation 1 = Bottom and side of frame detected (4 points)



Situation 2 = Both sides detected (4 points)



Situation 3
1st scan > both sides detected (2 points)
feed of media to start second fast scan
2nd scan > bottom and side of frame detected (4 points)



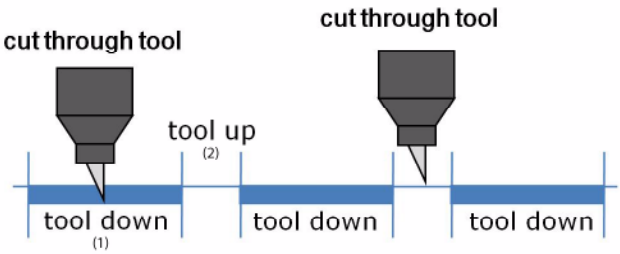
When the cutter establishes a slight difference between the thicknesses of the frame in one or more corners, a re-measuring is performed at the respective side of the frame but slightly higher or lower. If there is still dissimilarity, a warning message is displayed on the panel and a cross is cut in the lower right corner.

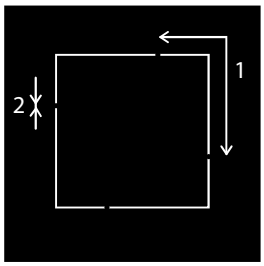
Refer to Contourcutting errors and warnings (ID 6201-6271) on page 175

Chapter 7 Through cutting

7.1 Introduction

When the contour of your file is completed, single sticker samples (basic shapes) are often to be isolated. (E.g. if making 100 stickers, you want to be able to get out every sticker separately. Due to Mutoh's supporting cut through technique, an extra protection of sticker drop-outs is guaranteed by configuring your tool-up distance.





7.2 Setting up your Kona cutting plotter

7.2.1 Tools necessary

Through cutting is a combination of firmware and software features, the correct settings and tools. Be sure to have the following firmware, software and tool(s) to perform a through cut.

Firmware - program - tool	To have at least ...
Kona cutting plotter cutter firmware	KN 1.0.0
EasySIGN	service pack v 5.12 There is a special driver update required when working with the Kona cutting plotter series cutters. This file (*Mutoh.drv*) can be found on Mutoh's FTP and should be copied over the existing *Mutoh.drv*
Mutoh Grip (+)	8.00
Standard knife	Angle = 45° and offset = 0,50 mm
Cut through knife	Angle = 45° and offset = 0,50 mm
Spare cutting mat	Partnumber: KY-15305

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7.2.2 Toolswap settings

Step 1: Press the following buttons in order:

- *Settings*

- *Tool*

- *next page*

- *Swap alert*

Step 2: Make your preferred choice.

- On or Off, if swap alerts is set to off, an automatic switch between tools is performed without tool swap notifications

Note

- **EasySign uses always SP2 and its own Cut Through parameters.**
- **The user can define his own tool in the user interface (default tool 2) however, these settings are overruled by the EasySign settings.**

7.2.3 Through cut settings

It is however not easy to match an ideal tool configuration setup in which the media weakness suffers not radically from the multiple cut through samples accomplished. Therefore a perfect harmony between your tool down force and tool up distance needs to be synchronised.

Via this menu, you can set the desired cut through parameters.

Parameter	Description
Tool	Select the tool you want to use for the cut through operation.
Velocity	The speed of which the cut through routine is cut. *Default: 10 cm/s*
Force	The force on the tool during the cut through routine. *Default: 250 gram*
Tool Down Distance	The distance of cutting through the vinyl. *Default: 10 cm*
Tool Up Distance	The quantity of vinyl left uncut to hold the sticker fixed to the media. *Default: 0,1 cm*

Note

- **Be aware that Software such as EasySign overrulles your settings. Therefore it is best to verify the settings in the used software as well.**

After setting these values, it is also possible to test if they match your needs

Follow the procedure below to the velocity and force:

Step 1: Press the following buttons in order:

- *Settings*

- *Cut through*

Step 2: Select the tool you want to use.

Step 3: Set the values for the *velocity* and *force*.

Step 4: Enter the desired values and confirm with ✓

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Step 5: Set the values for the *tool up* and *tool down* distance.

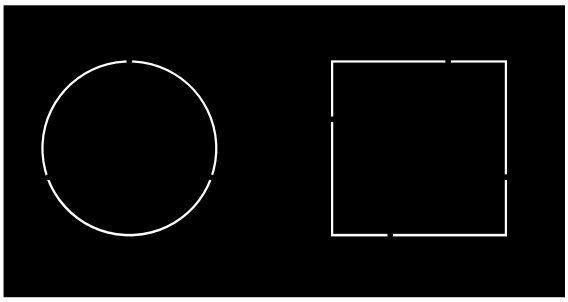
- *Go to the next sub page*

- *Select Up Dist. and/or Down. Dist.*

Step 6: Enter the desired values and confirm with ✓

Step 7: Press the test key to verify the quality of the through cutting settings.

Step 8: The following pattern is cut.



Step 9: Check if it is easy to push out the cut patterns.

- If not, try to increase the force and knife depth

Step 10: Be sure to perform a sheet-off after the test because the pushed-out squares/circles will uncover the paper sensor which could lead to an error.

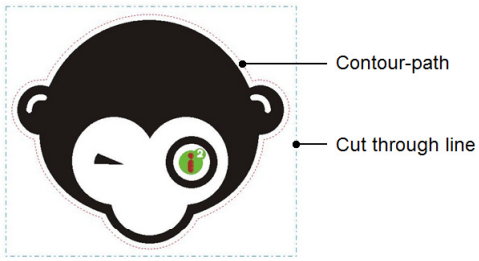
Refer to Toolswap settings on page 149

7.3 Through cutting workflow

7.3.1 Basically, 4 cut through parameters are required:

- Cut through speed > VS command
- Cut through force > ZF command
- Tool down & tool up distance > UL & LT command

7.3.2 Cut the vectors in following order:



- 1st Standard cut lines
- 2nd Print and cut lines
- 3rd Cut through lines

7.3.3 Cut through specifications:

- reduce your speed to 10 cm/s
- increase your force to 250 g
- use all pressure rollers
  - On a Kona 760 ==> 2 pressure rollers
  - On a Kona 1400 and Kona 1650 ==> 3 pressure rollers
- lower your cut through media width dimension
- choose your in between margins for cut through stickers sufficient enough
- minimal vinyl movement
- plot order important (first > contour data, second > cut through data)
- VS/ZF/AS menu = accept (new header per line type)
  When accepting you will use the EasySign settings and not the parameters you set.
  Therefore you need to set your preferred settings in EasySign.
- easy cut through shapes (rectangles, circles, squares)
- NO multi-frame alignment systems advised (multi-segment)
- NO repeat mode recommend

For cut through reasons, it is better to have this dashing technique (intermittent plotting via the LT, UL commands) configured at the end of your vector data group. The sorting routine of your software should therefore automatically configure these vector paths at the end of your file output.

Cut Through *compatible* alignments are:

- Manual Alignment
- Automatic Alignment
- Automatic Alignment with bar code
- Automatic multi - frame alignment with bar code (# segments)

Cut Through *incompatible* alignments are:

- Multi - frame splitting done by Mutoh Kona

Refer to Tools necessary on page 148 **to know which softwares are compatible.**

7.4 Poster trimming workflow

After printing some posters, it is possible to use the Kona cutting plotter to trim the posters afterwards. Do this as follows:

Step 1: Load the poster in the cutter.

Step 2: Install a knife at through cut depth.

Step 3: Make your personal settings regarding the cut through feature.

- Tool
- Velocity
- Force
- Tool up distance
- Tool down distance

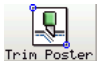
Refer to Through cut settings on page 150 **for all details on how to change the parameters.**

Step 4: Press the following buttons in order:

- *Actions*

- *Cut Through*

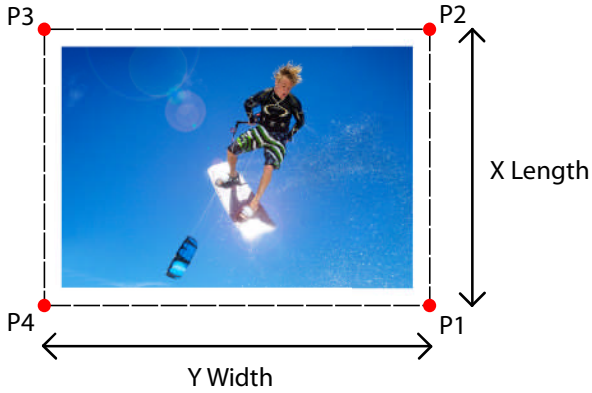
- *Trim poster*



Step 5: Set the approximate length and width of the poster.

Step 6: Press the *next* key.

Step 7: Move the penhead using the jog keys until the knife point is positioned above P1 and press OK when done.



Step 8: The cutter will automatically feed the media the length set previously. Use the jog keys to set the second corner more precisely if necessary.

Step 9: Do this until you have selected all 4 corners in correct order (P1 – P2 – P3 – P4).

Step 10: Insert the through cut tool when asked and press OK when done.

Note

- **This message will only be displayed when the swap alert setting is set to ON. Otherwise, the poster is cut through without this notification.**

  Refer to Toolswap settings on page 149

Step 11: The poster is trimmed according to the routine shown below:

Step 12: After finalizing the trimming of the poster, insert the standard tool again and press OK.

Note

- **This message will only be displayed when the swap alert setting is set to ON.**

  Refer to Toolswap settings on page 149

Step 13: Gently push out the poster.

Chapter 8 Maintenance

8.1 Cleaning and daily maintenance

Your cutting plotter, knives and pens will work better and last longer if you keep them clean and perform a few simple daily maintenance tasks.

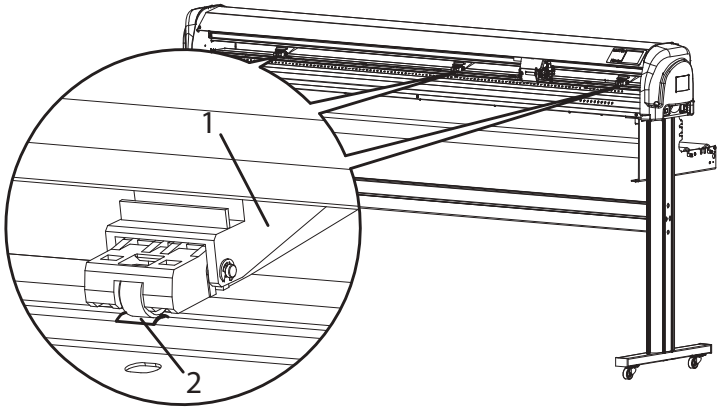
Note

- **Before performing cleaning and daily maintenance, please power OFF the unit and remove the power cable.**

8.1.1 Cleaning the grit roll

Cleaning the grit rolls consists out of two parts.

Part 1 is the place where the pressure rollers (1) press the media firmly against the grit rolls (2). For this reason it is possible that, after some time, the friction drive rolls (2) become clogged with accumulated residue from cutting media. This can cause slippage of the material, resulting in inaccurate cuts or incorrect vinyl transport. Therefore it is a good habit to clean the drive rolls regularly. To do this you can use a brush and rotate the rolls manually to make sure that they are thoroughly cleaned.



Part 2 is the place where the grit roll is touching the inside bearing. After a while there might be a trace on the grit roll.

Clean this trace with a polyknit wiper.

8.1.2 Cleaning the cutting plotter

Use a soft cloth to clean paper dust and particles off the platen, the grit cover the cutting mat and the carriage cover.

Use a cotton swab to clean the media sensors and EPOS laser.

Be sure to recalibrate the EPOS sensor after cleaning it.

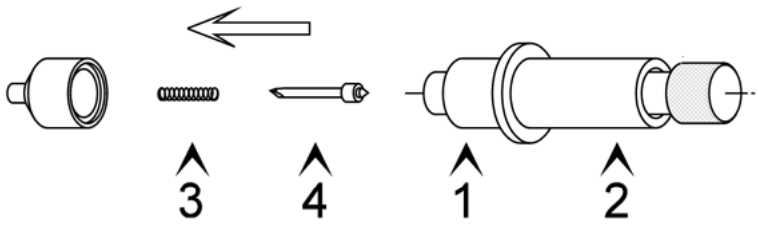
Refer to Epos on page 92

8.1.3 Cleaning the cutter blade

Use following procedure to remove small vinyl particles in the base part of the cutting blade holder.

Standard knife holder

Step 1: Hold the body (2) into one hand and unscrew the base part (1)



Step 2: Remove the spring (3) and the cutting blade (4).

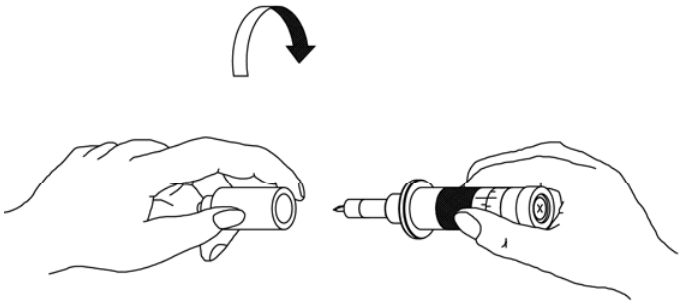
Step 3: Blow away vinyl particles accumulated in the top of the base part.

Step 4: Remove the spring from the cutting blade and remove any residual material from the blade tip

Step 5: Place the spring back over the cutting blade and tightly screw the base part on the body.

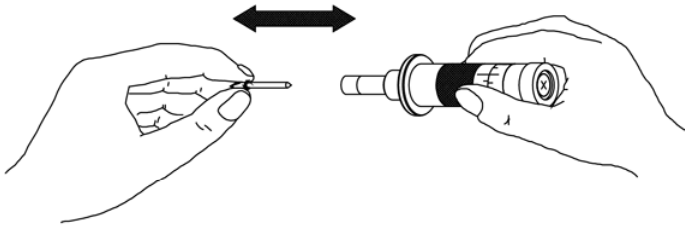
Knife holder with nonius

Step 1: Take the body into one hand and remove the base part.

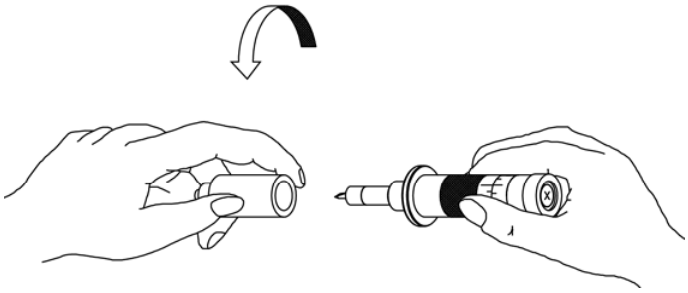


Step 2: Blow away the vinyl particles accumulated in the top of the base part.

Step 3: Remove any residual material from the blade tip.



Step 4: Place the base part on top of the holder assembly and twist it tightly.



8.1.4 Cleaning the touch screen

After a while, fingerprints or dust will make the touch screen dirty. Clean the touch screen as follows:

Step 1: Power off the cutter.

Step 2: Wet a soft, lint-free or microfiber cloth with distilled water. Wring out as much water as you can. Make sure the cloth is damp but not wet. Wipe the screen in a gentle motion to remove dust or fingerprint smudges off.

Step 3: Another option is to use a screen cleaner kit that includes antistatic wipes. You can buy this at various electronic or online stores. Spray a little solution on a wipe then rub it gently across the screen.

Step 4: Finish cleaning the touch screen with a dry lint-free cloth to wipe any excess moisture.

Chapter 9 Troubleshooting

9.1 Day-to-day use issues

In this section you will find a summary of problems that might occur during day-to-day use of your cutter and some hints how to determine the cause of the problem.

9.1.1 Warning messages

Calibration warning

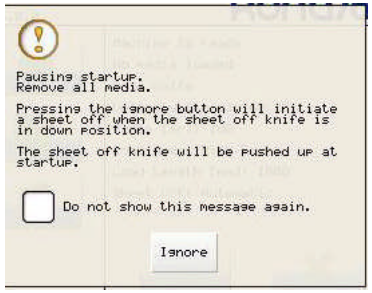
When starting up the Kona, the machine is verifying the YZ profile and the EPOS calibration. If one of these two is not calibrated, a message appears warning the user to perform these calibrations.

Note

- **Select the checkbox in case you do not want to see these messages when starting up. Be aware that this is not advised. If the calibrations are not performed, the machine will work uncalibrated with the risk of loss in accuracy.**

Media loaded warning

When starting up the Kona it is advised there is no media loaded. If there is media loaded, the Kona will show below warning message.



If the sheet off knife is in the down position, the loaded media is sheeted off while the Kona is initializing.

EPOS warning

When performing an EPOS contour cutting operation, and a warning appears, an extra option is added to ignore similar warnings for this job.

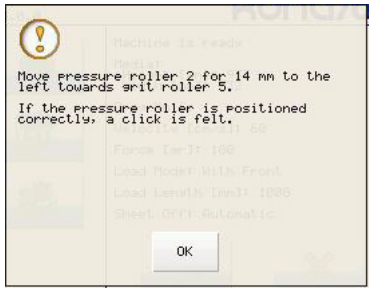
For example: A Multi- Frame job is done and in the first segment a warning is encountered. If you choose not to ignore similar warnings, the warning message will keep appearing if the warning situation is encountered in another segment.

If you choose to ignore similar warnings, the warning will no longer appear when the warning situation appears.

Pressure roller positioning warning

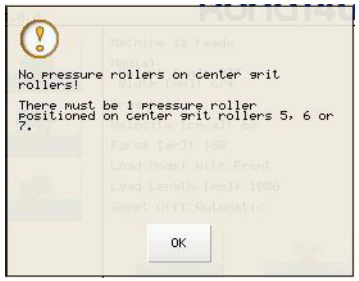
If a pressure roller is wrongly positioned, the Kona will show a warning message during the media measurement. There are 3 types of warning messages.

- Move pressure roller. (Can appear on Kona 760 - 1400 - 1650)
  - In case the pressure roller is not positioned correctly, a warning message appears. Move the requested grit roller to the requested position.



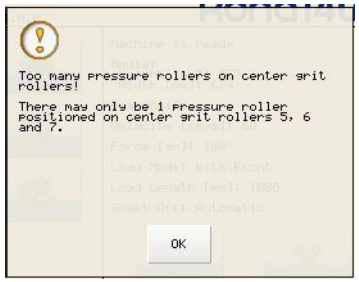
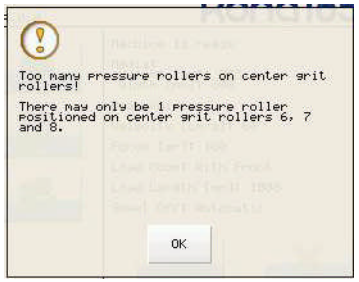
Refer to Pressure roller positioning on page 48 **for more information.**

- No pressure rollers on centre grit roller
  - There must always be 1 pressure roller on the centre grit roller. Position one of the suggested pressure rollers on the centre grit roller.

Kona 1400	Kona 1650
	

Refer to Pressure roller positioning on page 48 **for more information.**

- Too many pressure rollers on centre grit roller
  - There are too many pressure rollers positioned in the middle of the grit roller. Reposition the pressure rollers on the grit roller.

Kona 1400	Kona 1650
	

Refer to Pressure roller positioning on page 48 **for more information.**

9.1.2 Beeping codes: My Kona is making a beeping sound once in a while.

The Kona has different kinds of beeping sets. Each telling something else.
Below you find a small overview of when the Kona is making which sound.

- 2 short tunes = Start-up tune
  - Happens when the complete machine is started successfully.
- 9 short beeps
  - Happens after start-up, before the y movement starts
  - Happens after lever down before the media measurement starts
- Never ending beeping tune
  - Happens when an error occurs.
  - In case of a fatal error, the tune can be stopped by pressing the screen. Restart the machine to continue working
- Short beep = key tune
  - Happens when a key is touched (when enabled in the user interface)
  - 2 short beeps will sound in case of entering an invalid value.
- Beep tune of 1 sec
  - Happens when a toolswap request is received and the user needs to take some actions.
  - Happens when an Epos error is detected.

9.1.3 The USB connection disappears.

In case the Kona is subject to static electricity, the USB connection can be abrupted. To make a new connection, pull out the USB cable and reinsert it.
It is very important to install the anti static brushes to avoid these kind of problems.

9.1.4 The power ON, but the cutter does not operate.

- Is the power cable connected to the cutter?

9.1.5 Media is loaded, but the cutter does not operate.

- Is the pressure roller lever lowered?
- Is the media properly loaded?
- Are the paper sensors clean?
- Is the cutter in an error state?
- Is the cutter protected against direct sunlight which could disorder the media sensors?

9.1.6 Data is being sent from the computer, but the cutter does not react.

- Is there a proper interface cable connected?
- Do the interface conditions on the host computer match those set on the cutter?
- Are you in the pause state?
- Is there media loaded?

9.1.7 Data is sent from the computer but errors occur on the cutter's side.

- Are the output settings correct on the host computer and in the cutting software?
- Do the interface conditions on the host computer match those set on the cutter?
- Does the command mode on the host computer match the command mode on the cutter?

9.1.8 Some parts of the design are not well cut.

- Check whether the knife tip is not clogged with material residues.
- Examine the knife blade with a magnifier to see if the tip is not damaged or broken.
- Perform the offset adjustment routine to check cutting quality.
- Perform the test cut and check its quality.
- Perform the EPOS alignment test.

9.1.9 The output is 2,5 x too large or 2,5 x too small

- The cutter is using the wrong step adjust. Please refer to chapter 4 "Program Step", to correct the step adjust and try again. As an alternative solution, you can also choose to change the step adjust in your software. Both settings should be matched to each other.

9.2 Error messages

Note

- **If an error appears, the cutter will make a beeping sound. It is possible to switch off this sound by simply touching the screen.**

9.2.1 Recoverable error messages with no error ID number

During a cutting, measuring or other sequence, it might be possible that one of the below errors occur. Please find a list below with all the possible errors which can be solved yourself, without any need of an intervention by an authorized Mutoh technician.

Error	Cause	Solution	Refer to ...
EPOS calibration error <RETRY>	EPOS sensor goes in error during the EPOS calibration.	■ Try again or reboot and try again. ■ Contact an Authorized Mutoh Technician if the error remains.	
EPOS problem: PG problem occurred	When there has been executed a PG command between 2 segments or at the start of a new job, this error can occur. This can be caused by: ■ Media is too short ■ Job has been interrupted by the user ■ A movement cannot be performed because of mechanical failures.	■ Check the media size. ■ Reboot the machine.	

Error	Cause	Solution	Refer to ...
The plot data is out of limit and is clipped to hardclip region	■ The data sent to the cutter is larger than the position between the first and last pressure roller.	■ Load appropriate media. ■ Reposition pressure rollers. ■ Redesign your job.	**Refer to** Loading media on page 48
Unable to show point	■ There is an error during the switch from the cutter knife to the laser or vice versa. ■ If the cutting head is located at the end of a paper during the switch, this error can occur also.	■ Try again or reboot and try again. ■ Contact an authorized Mutoh technician if the error remains.	
EPOS problem: No EPOS reference found	■ It might be possible that the reference box cannot be found. ■ The EPOS sensor is broken	■ Select the correct file in the Mutoh CutServer and start the job manually (send EPOS job) ■ Make sure that the printed reference box is made within the specifications. (print the file once again with a thicker reference box, e.g. 5 mm or more) ■ Be sure that the contour cutting box is located in between the two outer pressure rollers. ■ Be sure that the media is loaded straight. ■ Contact an authorized Mutoh technician to replace the sensor	**Refer to Application Guide** **Refer to** Bounding box details on page 139

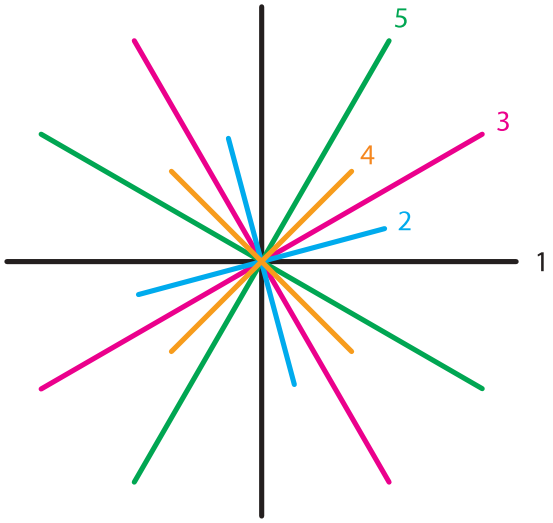
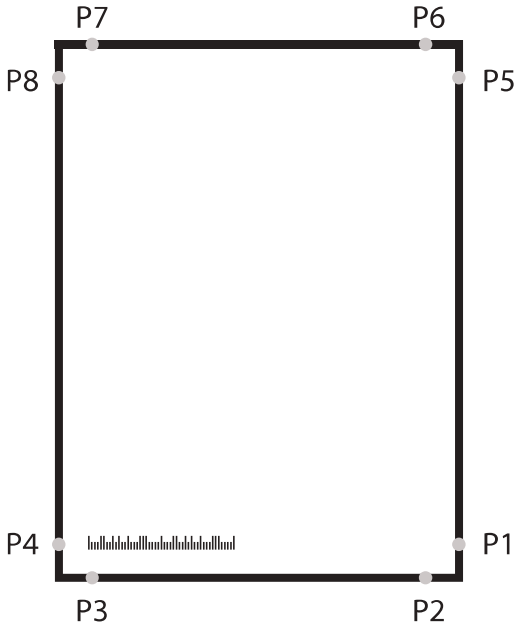
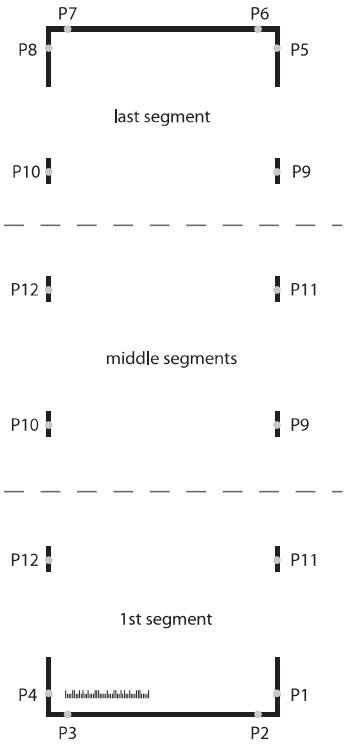
9.2.2 Errors with error number (ID 1009-6115)

Error	Message	Description	Solution	Category
1009	Y position error	The head is obstructed and cannot move anymore. E.g. due to a media crash or mechanical obstruction.	Remove the object blocking the head and restart the cutter.	Fatal error
1010	X position error	The media cannot be fed forward/backward. Because of a media crash, too heavy media or mechanical obstruction.	Remove the object blocking the grit rolls and restart the cutter.	Fatal error
1014	X fuse error	■ Power supply problem ■ X fuse is broken ■ X motor problem	Contact an authorized Mutoh technician	Fatal error
1015	Y fuse error	■ Power supply problem ■ Y fuse is broken ■ Y motor problem	Contact an authorized Mutoh technician	Fatal error
1045	No Z encoder	■ Z encoder or flatcable is broken	Contact an authorized Mutoh technician	Fatal error
1049	Y PWM max error	There is too much force necessary to move the head left or right.	Remove the object blocking the head and restart the cutter.	Fatal error
1050	X PWM max error	There is too much force necessary to move the media back- and/or forwards.	Remove the object blocking the grit rolls and restart the cutter.	Fatal error
1060	Sheet off error	The front sensor is still covered after a sheet-off	Check if the sheet-off system Is the cutting blade still sharp?	Warning
2000	PG problem detected	Media is too short to perform a PG action	Load a longer sheet	Warning

Error	Message	Description	Solution	Category
6098	EPOS calibration error	Could not calibrate the pen to laser distance	■ Make sure that the difference between white and colour can be recognized by the EPOS sensor **Refer to** EPOS read on page 125 ■ The media has not been weed out (when asked on the display) before the EPOS alignment measurement ■ The laser is broken.	Warning
6099	EPOS measurement is unstable	There is too much variation between the X and Y calibration measurements	■ Is the media loaded correctly? **Refer to** Loading media on page 48	Warning
6100	Bump problem machine width	The cutter cannot finish the cutter width measurement routine. This could be caused by a mechanical obstruction.	Remove the media or object blocking the head from moving and restart the cutter.	Warning
6101	Bump wrong origin	The bump at the right side of the machine is blocked	■ Check for mechanical obstructions of the bump and remove them.	Warning
6105	X measurement problem. Reload media	The rear media sensor is uncovered during a media measurement routine	■ Is the media loaded correctly? **Refer to** Loading media on page 48	Warning
6115	TFT board detection problem	The flatcable of the touch screen is not connected or broken	Contact an authorized Mutoh technician	Warning

9.2.3 Contourcutting errors and warnings (ID 6201-6271)

When a specific contour cutting warning or error occurs, an error number is displayed and a cross is cut in the lower right corner. All codes are unique and the cross has a predefined angle and size to know of which nature the error is.

Pre-defined crosses	Single frame calibration points	Multi frame calibration points
 1. Print distortion - Bad rectangle 2. Media shift detected 3. Print distortion - Stretch 4. Possible data clipped 5. Thickness problem		

Please find below an overview of the codes and category of problem

- A warning means that you will have the choice to continue cutting the current segment, all segments or to cancel the job.
- An error means that you will have to retry the scanning routine. The reading of the frame has been cancelled.

Error	Message	Description	Solution	Category
6201	EPOS alignment aborted	EPOS alignment aborted	-	Error
6202	EPOS alignment aborted	The pressure rollers are raised		
6203	EPOS alignment aborted	Alignment procedure has been aborted by the user		
6206	Movement failed	Movement failed during EPOS routine (moveabsc)	-	Error
6207	Movement failed	Movement failed during EPOS routine (drawcontrol)		
6208	Movement failed	Movement failed during EPOS routine (scanroutine)		
6211	Barcode problem occurred	Barcode too long	Rescan the job and if the error still occurs, try to: ■ Replot the job ■ Reprint the job **Refer to** Bounding box details on page 139	Error
6212	Barcode problem occurred	Barcode width problem		
6213	Barcode problem occurred	Barcode height problem		
6214	Barcode problem occurred	Barcode scan problem 1 (lower line of barcode)		
6215	Barcode problem occurred	Barcode scan problem 2 (upper line of barcode)		
6216	Barcode problem occurred	Checksum not OK		

Error	Message	Description	Solution	Category
6218	Media size problem	Check if the margins left, right, top and bottom are within the specifications. It might be possible that the file you have sent is not correct	■ Did you sent the correct file **Refer to** Bounding box details on page 139	Error
6221	Page problem occurred	PG after job failed	Check the media size	Error
6222	Page problem occurred	PG between 2 segments failed or the cutter is set to repeat mode and there cannot be found a next job.		
6223	No EPOS reference found	During search with EPOS laser, no edge was found (colour <> white)	■ Refer to EPOS read on page 125 ■ If this does not help, change the load mode. This problem could occur due to the load mode front and uneven media.	Error
6225	Possible data clip detected	One or more frame points lie outside hardclip region. Plot data will be clipped.	Outer pressure rollers are inside frame. **Refer to** Loading media on page 48	Warning
6226	Print distortion *bad rectangle*	Original print distortion. No perfect rectangle, no parallel sides (difference > 3mm)	Bad print quality or outside specs. **Refer to** Bounding box details on page 139	Warning

Error	Message	Description	Solution	Category
6227	Print distortion *print stretch*	Stretch detected on bottom of frame. P1 & P4 have identical thickness. P2 & P3 have identical thickness. But thickness of P1-P4 and P2-P3 differ too much from each other. Print is stretched.	You can try to cut the job if you want to. Perfect quality is not guaranteed. What to check in case of bad quality: ■ Printer settings ■ RIP settings ■ Design **Refer to** Bounding box details on page 139	Warning
6228	Print distortion *print stretch*	Stretch detected on top of frame. P5 & P8 have identical thickness. P6 & P7 have identical thickness. But thickness of P5-P8 and P6-P7 differ too much from each other. Frame (print result) is stretched.		
6229	Print distortion *print stretch*	Stretch detected on side of frame. Px & Py have identical thickness. Pw & Pz have identical thickness. But thickness of Px-Py and Pw-Pz differ too much from each other. Frame (print result) is stretched! Depending on kind of measured segment: Px, Py, Pw, Pz are different. 1. *Px = P1, Py = P4, Pw = P5, Pz = P8* 2. *Px = P1, Py = P4, Pw = P9, Pz = P10* 3. *Px = P9, Py = P10, Pw = P11, Pz = P12* 4. *Px = P11, Py = P12, Pw = P5, Pz = P8*		

Error	Message	Description	Solution	Category
6231	Thickness problem *frame bottom*	All measured points of frame bottom vary too much from each other! This will influence the accuracy of the cutting.	You can try to cut the job if you want to. Perfect quality is not guaranteed. What to check in case of bad quality: ■ Printer settings ■ RIP settings ■ Design **Refer to** Bounding box details on page 139	Warning
6232	Thickness problem *frame bottom*	Invalid thickness of P1 (right side of frame bottom). Thickness varies too much from other bottom points! This will influence the accuracy of the cutting.		
6233	Thickness problem *frame bottom*	Invalid thickness of P2 (bottom right of frame bottom). Thickness varies too much from other bottom points! This will influence the accuracy of the cutting.		
6234	Thickness problem *frame bottom*	Invalid thickness of P3 (bottom left side of frame bottom). Thickness varies too much from other bottom points! This will influence the accuracy of the cutting.		
6235	Thickness problem *frame bottom*	Invalid thickness of P4 (left side of bottom point). Thickness varies too much from other bottom points! This will influence the accuracy of the cutting.		
6236	Thickness problem *frame bottom*	Invalid thickness of P1 and P4. Thickness of these points varies too much from each other AND varies also from P2 & P3! This will influence the accuracy of the cutting.		
6237	Thickness problem *frame bottom*	Invalid thickness of P2 and P3. Thickness of these points varies too much from each other AND varies also from P1 & P4! This will influence the accuracy of the cutting.		

Error	Message	Description	Solution	Category
6241	Thickness problem *frame top*	All measured points of frame top vary too much from each other! This will influence the accuracy of the cutting.	You can try to cut the job if you want to. Perfect quality is not guaranteed. What to check in case of bad quality: ■ Printer settings ■ RIP settings ■ Design **Refer to** Bounding box details on page 139	Warning
6242	Thickness problem *frame top*	Invalid thickness of P5 (right side of frame top). Thickness varies too much from other top points! This will influence the accuracy of the cutting.		
6243	Thickness problem *frame top*	Invalid thickness of P6 (top right of frame top). Thickness varies too much from other top points! This will influence the accuracy of the cutting.		
6244	Thickness problem *frame top*	Invalid thickness of P7 (top left side of frame top). Thickness varies too much from other top points! This will influence the accuracy of the cutting.		
6245	Thickness problem *frame top*	Invalid thickness of P8 (left side of top point). Thickness varies too much from other top points! This will influence the accuracy of the cutting.		
6246	Thickness problem *frame top*	Invalid thickness of P5 and P8. Thickness of these points varies too much from each other AND varies also from P6 & P7! This will influence the accuracy of the cutting.		
6247	Thickness problem *frame top*	Invalid thickness of P6 and P7. Thickness of these points varies too much from each other AND varies also from P5 & P8! This will influence the accuracy of the cutting.		

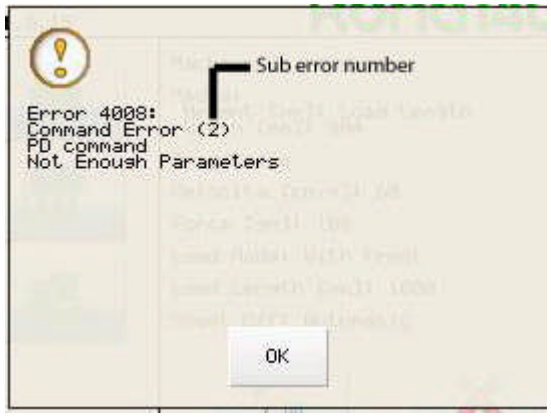
Error	Message	Description	Solution	Category
6251	Thickness problem *frame centre*	Thickness of centre points (P9 & P10) differs too much from each other AND differs also from bottom points P1 and P4.	You can try to cut the job if you want to. Perfect quality is not guaranteed. What to check in case of bad quality: ■ Printer settings ■ RIP settings ■ Design **Refer to** Bounding box details on page 139	Warning
6252	Thickness problem *frame centre*	Invalid thickness of P9 (right centre point). Thickness varies too much from P10! This will influence the accuracy of the cutting.		
6253	Thickness problem *frame centre*	Invalid thickness of P10 (left centre point). Thickness varies too much from P9! This will influence the accuracy of the cutting.		
6254	Thickness problem *frame centre*	Thickness of centre points (P11 & P12) differs too much from each other AND differs also from bottom points P1 and P4.		
6255	Thickness problem *frame centre*	Invalid thickness of P11 (right centre point). Thickness varies too much from P12! This will influence the accuracy of the cutting.		
6256	Thickness problem *frame centre*	Invalid thickness of P12 (left centre point). Thickness varies too much from P11! This will influence the accuracy of the cutting.		

Error	Message	Description	Solution	Category
6261	No valid frame found	No valid frame found during fast scan routine (after several retries). Make sure all frame specifications are applied.	To check: ■ Frame isn't found within 120 cm. Media space before frame bottom is too much. ■ Frame bottom doesn't have the correct specifications (minimum thickness of 3mm on ALL sides, thickness too varying, frame height < 20cm, frame width < 10cm, frame angle < 5°) **Refer to** Bounding box details on page 139	Error
6262	No valid frame found	Only 1 frame point found during diagonal scan.		
6263	No valid frame found	No frame points found during diagonal scan.		
6264	No valid frame found	Thickness of left side of frame invalid		
6265	No valid frame found	Varying thickness		
6266	No valid frame found	Invalid thickness		
6267	No valid frame found	Invalid frame angle		
6268	No valid frame found	Requested X movement for fast scan cannot be executed.		
6269	No valid frame found	Invalid spot type		

Error	Message	Description	Solution	Category
6271	Media shift detected	Media displacement detected during cutting. Centre markers of previous segment are shift more than 2mm.	To check: ■ Grits on media? ■ Pinches and grits clean? **Refer to** Cleaning the grit roll on page 158	Warning
6290	Invalid file received	Single frame job, but Multi Frame file received	Check if a Single Frame measurement has been started	Warning
6291	Invalid contour cut file	Machine received an incompatible contour cut file	The cutter received a file that was expected for the CutServer. Send the file via the CutServer	Warning

9.2.4 MGL errors (ID 4000-5000)

As from the moment data is sent to the Kona which is not correct, an error and sub error number is displayed. Please find below a list with explanations of these sub numbers.



Sub number	Description
0	No parameters allowed
1	No parameter case is illegal
2	Not enough parameters
3	Too many parameters
4	Illegal command termination
5	Illegal command definition
6	Undefined program flow
7	Parameter size overflow

Sub number	Description
8	Error in MGL command definition
9	Label out of limit error
other	Unknown MGL error

Note

- **Be aware that when one of the above errors occurs, no beeping sound will be heard.**

Chapter 10 Consumables

Refer to the Mutoh Kona cutting plotter's unit or spare part price list for the most recent prices of these consumables.

10.1 Knife holder and blades

10.1.1 Knife Holder without Depth Change Indication

Picture	part number	Description
	ZMY-10050B	Knife Holder without Depth Change Indication including one blade, 45° angle, 0.5 mm offset
	*Blades for Knife Holder without Depth Indication - 0.5 mm offset*	
	ZME-20034A	Cutting Knife Blades 30° angle (Yellow cap) (set of two)
	ZME-20034B	Cutting Knife Blades 45° angle (Red cap) (set of two)
	ZME-20034C	Cutting Knife Blades 60° angle (Blue cap) (set of two)

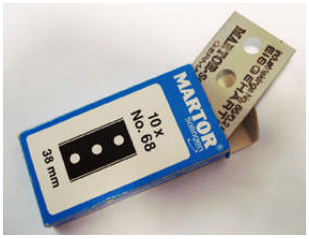
10.1.2 Knife Holder with Depth Change Indication

Picture	part number	Description
	ZMY-10034B	Knife Holder with Depth Change Indication Including one blade, 45° angle, 0.5 mm offset
	*Blades for Knife Holder with Depth Change Indication - 0.5 mm offset*	
	ZME-10034A	Cutting Knife Blades 30° angle (set of two)
	ZME-10034B	Cutting Knife Blades 45° angle (set of two)
	ZME-10034C	Cutting Knife Blades 60° angle (set of two)

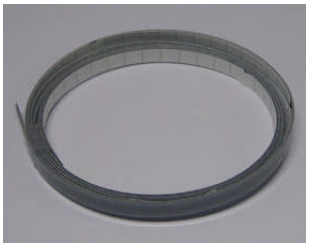
10.2 Pens

Picture	part number	Description
	PSGBBK	Pressurized ballpoint pen.

10.3 Sheet off blades

Picture	part number	Description
	KY-15134	Set of Sheet Off Blades (10 pieces)

10.4 Cutting mat

Picture	part number	Description
	KY-15305	Cutting mat (5 pieces) (The colour of the cutting mat could be white or black, both have the same quality)

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